



Joint Vision for Non-Lethals:

**Meeting the Demand of
Future Military Operations**

**Study For
Joint Non-Lethal Weapons Program**



American Systems Corporation

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Executive Summary

Can non-lethals contribute to future military operations?

This is the fundamental question addressed in a recent study supporting the development of a Joint Vision for future use of non-lethals. A Joint working group—composed of active and retired Officers, a career diplomat, and defense analysts—conducted this study, examining if, where, and how non-lethals might contribute to future military operations.

Past uses of non-lethals

First, it is important to point out that non-lethals are not new. They have existed for centuries and have supported many past operations. Smoke has long been used for concealment. Entangling devices, such as caltrops were employed against cavalry and infantry long before they were used against motorized vehicles. So, while the term “non-lethals” may be relatively new, the military’s experience with them is not.

Present situation

Though non-lethals have a long history, they recently attained much greater prominence. Employment during operations in Somalia and Bosnia greatly increased interest in the potential of non-lethal capabilities.

This interest translated into a diverse set of efforts to develop and field non-lethals. Initial applications have focused on smaller-scale contingencies at the tactical level and on force protection. The Joint Non-Lethal Weapons Program is pursuing the development of capabilities covering six non-lethal functional areas¹: incapacitation of personnel; crowd control; area denial to personnel; clearing facilities of personnel; area denial to vehicles, ships and aircraft; and disabling or neutralizing equipment or facilities.

Future opportunities

The Joint working group deliberately did **not** confine development of the vision based on past or present roles. Nor, did the working group just limit itself to looking at technologies and their potential, or desired, effects.

Instead, the group’s analysis used a comprehensive, traceable approach built from a foundation with four pillars—alternative futures, operational context, tasks, and technologies—and two-way connections between the pillars. We examined threats and crises that might emerge, determined the Joint and Service tasks performed in different military operations, and assessed technologies’ potential capabilities vs. task requirements.

Applying this detailed approach, we identified where and how non-lethals could contribute. Lethal weapons clearly form the core of the nation’s arsenal, and they will continue to do so. Non-lethals can, however, offer valuable complementary capabilities. And there are selected areas where

¹ These six functional areas were identified in a CINC User’s Conference in 1996

they could offer advantages or unique opportunities relative to lethals. Table ES-1 lists some of these areas. Not surprisingly, the greatest number of opportunities exists at the lower end of the spectrum of conflict. But opportunities exist—including all of the items in the table—even at the Major Theater War (MTW) level.

Table ES-1. Important opportunities for non-lethals

Key areas where non-lethals offer significant or unique advantages relative to lethals	Non-lethal technologies potentially applicable to these tasks
Creation or enhancement of a target's signature	<ul style="list-style-type: none"> ▪ Taggants/Markers
Counter-mobility and area denial effects (with reversibility of effects)	<ul style="list-style-type: none"> ▪ Calmatives ▪ Malodorants ▪ Entanglements ▪ Reactants
Degrading WMD production and delivery systems (Non-lethals could reduce the risk of NBC release)	<ul style="list-style-type: none"> ▪ Electromagnetic ▪ Reactants ▪ Bio-degrading microbes
Deception (Affect—positively or negatively—perceptions)	<ul style="list-style-type: none"> ▪ Obscurants ▪ Optical technologies
Breaching (Facilitate movement and maneuver over and through barriers obstacles, and mines)	<ul style="list-style-type: none"> ▪ Barrier foams
Capture individuals for Intel purposes	<ul style="list-style-type: none"> ▪ Counter-personnel technologies
Protect forces and facilities	<ul style="list-style-type: none"> ▪ Most of the non-lethal taxonomy

Bottom line

In addressing the fundamental question—*Can non-lethals contribute to future military operations?*—the answer is **Yes**.

With respect to where and how they can contribute:

- Non-lethals apply across the hierarchy of tasks—strategic, operational, and tactical levels
- Non-lethals have major applications not just for Force Protection but also for Movement/Maneuver and Employing Forces/Fires, with fewer applications for ISR and C2.
- Non-lethals can not only complement lethals but also, for some tasks, offer advantages or unique contributions. This is true across the spectrum of threats and crises including MTW and higher, although it is true for an increasing number of tasks at the lower end of the spectrum.

Recommendations

The study's approach and results can be applied to support:

- POM initiatives—The approach provides a way to trace assumptions, demonstrate where and how non-lethals can contribute, and show the value of contributions in all types of military operations.
- Technology tradeoff decisions—The approach allows for direct comparisons of different non-lethal technologies in terms of their respective abilities to accomplish tasks, and it places these tasks within an operational context.

Initiate a Joint Mission Area Analysis (JMAA):

- This would represent an important next step for the Joint Non-Lethal Weapons Program. A JMAA would build on this study, and by getting input from CINC representatives, a key output would be a consensus on Joint mission needs.
- This study has provided all of the groundwork for a JMAA. Not only has it developed an approach and results from which a JMAA can build but also much of the analysis needed to complete the JMAA.
- Revisit the six non-lethal functional areas: Some of the opportunities highlighted in the table do not fall naturally into any of the six functional areas. A framework is needed that encompasses all key opportunities.

Introduction

The Joint Non-Lethal Weapons Directorate (JNLWD) asked American Systems Corporation and the Center for Naval Analysis to support the development of a Joint Vision for future use of non-lethals. The purpose was to determine if, where, and how non-lethals could contribute to future military operations.

This was not a stand-alone effort. The working group included participants from the military (active and retired), a career diplomat, defense and technology analysts from American Systems Corporation (ASC) and Center for Naval Analysis.

This report provides a detailed description of the vision, the approach the working group used to develop the vision, key findings, and implications. This document is intended to serve as an input for the working group's set of final documents. Final documents will include an executive summary, a condensed report, a comprehensive report, and multiple annexes².

² The annexes capture detailed results: on alternative future pathways and the kinds of threats and crises that may involve a U.S. military response; on tasks that must be performed in order to accomplish military operations across the spectrum of threats and crises; on the ability of specific non-lethal technologies to accomplish a given task; and on existing operational requirements and mission needs.

Background

Emergence of interest in non-lethals

Non-lethals are not new. They have existed for centuries and have supported many past military operations. Smoke has long been used for concealment. Entangling devices, such as caltrops, were employed against cavalry and infantry long before they were used against motorized vehicles. So, while the term “non-lethals” may be relatively new, the military’s experience with them is not.

Though non-lethals have a long history, they recently attained much greater prominence. Employment during operations in Somalia and Bosnia greatly increased interest in the potential of non-lethal capabilities.

This interest translated into a diverse set of efforts to develop and field non-lethals. Although initial systems and applications have focused on smaller-scale contingencies at the tactical level and on layered defense and force protection, future roles could be much broader.

Establishment of USMC as Executive Agent and creation of Joint Non-Lethal Weapons Directorate

In 1996, the increased level of interest led to the establishment of formal responsibilities for non-lethal weapons. The Commandant of the Marine Corps was designated Executive Agent for non-lethals, and the Joint Non-Lethal Weapons Directorate (JNLWD) was created.

The Directorate inherited many ongoing initiatives intended to advance non-lethal capabilities. Among these initiatives were efforts to develop specific supporting technologies—acoustic, bio-technical, chemical, mechanical, optical, and electromagnetic—procure new systems, field equipment, describe concepts of employment, and determine tactics, techniques and procedures. A major difficulty, however, stemmed from not having an overarching framework that tied these various initiatives together.

This made it difficult to identify opportunities for non-lethals, to show where and how they could contribute, to evaluate different non-lethal technologies against (and with) lethals and against each other. These difficulties affected the Directorate’s ability to support POM initiatives and to make tradeoff decisions.

Joint Non-Lethal Vision

These difficulties created the need for a vision. In 1999, the flag-level Joint Non-Lethal Weapons Integrated Product Team (IPT) called for the development of a Joint Vision for future use of non-lethals.

The Directorate promoted the establishment of a Joint Working Group and charged it with responsibilities for analyzing the potential ability of non-lethals to support future military operations.

The working group reflected a broad range of professional experience and expertise within and outside of DOD as shown in Figure 1.

Figure 1. Joint Working Group participants and their relevant operational experience

Participants	Operational Experience
<ul style="list-style-type: none"> ▪ Military: Active and Retired (All Services) ▪ Career Diplomat ▪ Defense and Technology Analysts from ASC and CNA 	<ul style="list-style-type: none"> ▪ Vietnam War ▪ Gulf War ▪ Somalia ▪ Haiti ▪ Bosnia • Dominican Republic • JTF Andrew • UN Observer Mission

Purpose: The working group’s purpose was to determine if, where, and how non-lethals could contribute to future military operations.

The working group identified five objectives that had to be achieved in order to accomplish this purpose:

- Provide a framework that encompasses the diverse set of current and future non-lethal initiatives, making it easier to pursue a common purpose
- Assess the potential operational utility of non-lethals
 - Examine potential operational environments and the applicability of lethals and non-lethals
 - Determine where non-lethals could contribute: types of operations/levels of effects/tasks supported
- Highlight unique opportunities for non-lethals
- Examine the relative contributions of different non-lethal technologies to support tradeoff decisions
- Support resource decisions

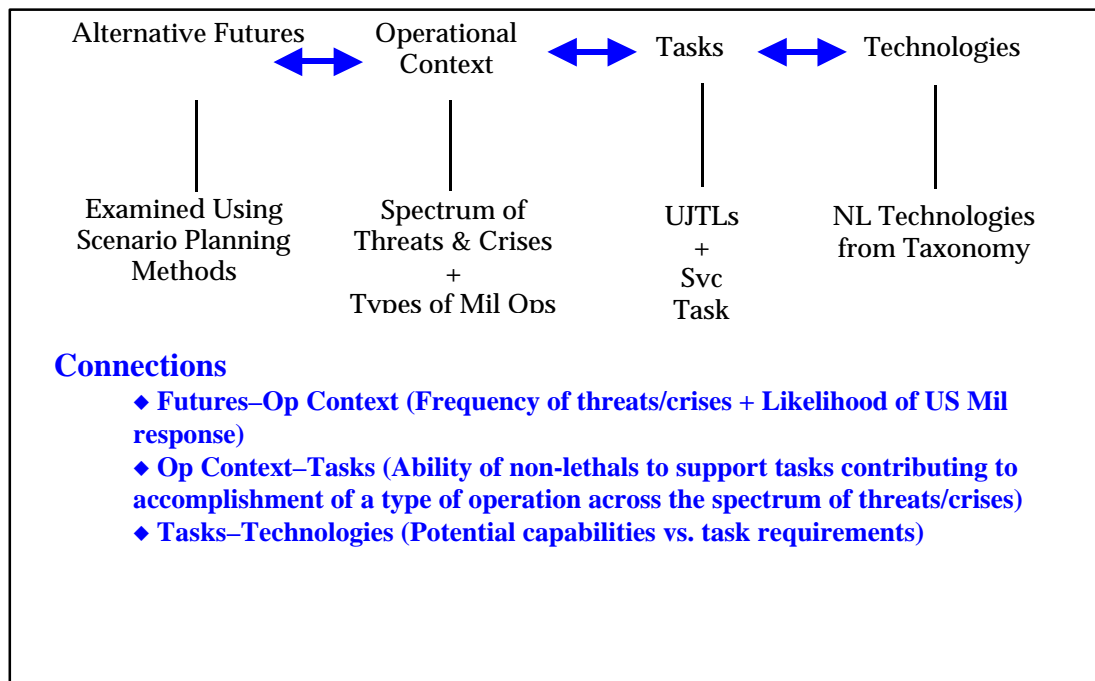
Methodology

Most currently fielded systems—including those deployed in support of recent real-world operations—are designed to support tactical-level, force protection applications in smaller-scale contingencies. These systems fall into six non-lethal functional areas, four counter-personnel and two counter-materiel. The four counter-personnel functional areas are: incapacitation of personnel, crowd control, area denial to personnel, and clearing facilities of personnel. The two counter-materiel functional areas are: area denial to vehicles, ships and aircraft; and disabling or neutralizing equipment or facilities.

The working group deliberately did **not** confine the development of the vision based on any of these factors. Nor, did the group limit itself to looking at technologies and their potential, or desired, effects.

Instead, the group developed the vision using the comprehensive, traceable approach illustrated in Figure 2. This approach built upon a foundation with four pillars: alternative futures, operational context, tasks, and technologies. Each pillar is directly connected with the adjacent pillar(s). For example, consider a task from the Universal Joint Task List (UJTL) or one of the Service task lists. This task is not examined in isolation. There is a connection with non-lethal technologies through an assessment of technologies' potential capabilities relative to the task's requirements. And, there is a connection to operational context through an assessment of the task's relevance to military operations at different points on the spectrum of threats and crises (from domestic emergencies through global war).

Figure 2. Illustration of Vision Methodology



This methodology explicitly examines:

- Different alternative future pathways—which may affect the frequency of threats and crises across different geographic regions and the likelihood of U.S. military involvement
- The entire spectrum of threats and crises³—from Domestic Emergencies through Global War—and specific types of military operations based largely on past operational experience
- All tasks, covering the Strategic National (SN), Strategic Theater (ST), Operational (OP), and Tactical (TA) levels⁴
- UJTLs and Service tasks, which fall into eight categories: 1) Move/maneuver forces, 2) Employ forces and fires; 3) Force protection; 4) Provide direction and Command and Control (C2); 5) Conduct Intelligence, Surveillance & Reconnaissance (ISR); 6)

³ This terminology is derived from the current National Security Strategy

⁴ These tasks and the different levels are defined in CJCSM 3500.04A, Universal Joint Task List Version 3.0, 13 September 1996

Sustain/provide logistics/CSS; 7) Support force development and readiness; 8) Promote multi-national and inter-agency relations

- The potential abilities of non-lethal technologies to accomplish tasks

This is both a comprehensive and very detailed approach. It involves the examination of 55 different types of non-lethal technologies. For each, we compared potential capabilities with task requirements (The UJTLs and Service tasks number almost 1500, with non-lethals potentially applicable to about 25 percent). For those tasks where non-lethals are potentially applicable, we examined the importance of that task to different operational contexts. This involved examining 7 levels on the spectrum of threats and crises and 20 types of military operations. And, to get a sense for the frequency with which different threats and crises would emerge, we examined four alternative scenarios.

The methodology may be painstaking, but it serves several critical purposes. It allows for a comparison of technologies, not just in terms of their respective effects but more importantly in terms of their abilities to accomplish tasks, the relevance of those tasks within an operational context, and the frequency of that type of operation and likelihood of U.S. military involvement. In other words, it runs the “trap lines” all the way from a technology through to the relevance of its operational contributions. Each step is traceable. In addressing if, where, and how non-lethals could contribute to future military operations, applying the methodology highlighted:

- Where non-lethals are applicable (Our finding: Non-lethals are applicable not just at the tactical level but also at the operational and strategic levels)
- The types of tasks that non-lethals can help accomplish (Our finding: there are major roles not just for Force Protection but also for Movement/Maneuver and Employ-ing Forces/Fires, with fewer applications for ISR and C2)
- How non-lethals can contribute (Our finding: not only can they complement lethals but also, for some tasks, offer advantages or unique contributions. This is true across the spectrum of threats and crises including for MTWs)

Alternative Futures⁵

Why use scenario planning methods?

Though we began this study recognizing that the future is inherently unknowable, there was also the realization that judgments would need to be made about the coming world if we were to determine the extent to which non-lethal capabilities could contribute to future military operations.

In 1992 John Gaddis, the “dean of diplomatic historians,” wrote a seminal article on international relations theory.⁶ In this piece he observes that

⁵ Annex 1 presents the analysis of alternative futures and describes findings in detail.

⁶ Gaddis, John Lewis, “International Relations Theory and the End of the Cold War,” *International Security*, Vol. 17, No. 3, (Winter 1992/93), pp. 5-58

despite the best efforts of political scientists from the late-1940s – when Hans J. Morgenthau claimed for the field the ability to “*foresee and influence the future*” – until the present, there has been a distinct inability to forecast world events.⁷ Gaddis concludes that this should not surprise us since political scientists “set out to embrace the traditional methods of the physical and natural sciences . . . at a time when physicists, biologists, and mathematicians . . . were abandoning old methods in favor of new ones that accommodated indeterminacy, irregularity, and unpredictability . . .”⁸ Political scientists failed to see that international relations are a *non-linear* phenomena. Such phenomena, the weather being the classic example, contain so many variables and are so sensitive to initial conditions it is mathematically impossible to predict how they will evolve beyond a relatively short time-horizon. Gaddis suggests that those interested in understanding future world events are far better served to use narrative, comparison, invention, and imagination to envision the impending world.

Henry Mintzberg, in *The Rise and Fall of Strategic Planning*, a book which has had a marked impact on strategic management, presents arguments similar to those of John Gaddis.⁹ Mintzberg notes that over the past forty years organizations and institutions of all kinds have employed a variety of analytical tools in attempts to “see” into the future. These mechanistic and structured means have failed to live up to the promises made for them. He maintains that “confounding analysis with ‘rationality’—calling it ‘systematic,’ ‘objective,’ logical,’ and other good things—has narrowed our view of the world, sometimes with disastrous consequences.”¹⁰ In other words, as Mintzberg so succinctly points out, analysis can not substitute for synthesis. One of his key points is that there is little ability in any formal process to predict discontinuities, the very things that produce unexpected outcomes. Moreover, most analytically based processes force a person to select a single course of action when multiple ones remain possible for the period under consideration.

With the words of Gaddis and Mintzberg in mind, we opted for a tool that has proven useful in planning for a world filled with great uncertainty, *scenarios*. We noted, however, the pitfalls Mintzberg found with scenario planning, especially the tendency to seize on one particular view of the future. The essence of scenario planning is aptly summarized in the words of one of its originators and a continuing practitioner, Peter Schwartz; “Scenarios are stories about the way the world might turn out tomorrow, stories that can help us recognize and adapt to changing aspects of our present environment.”¹¹ Most importantly, they help us to break out of old stereotypes and consider new and unique possibilities. Scenarios allow us to make choices with some understanding of the impact such choices might have in the future. As Schwartz notes, “This approach is more a disciplined way of thinking than a formal methodology.”¹²

⁷ *Ibid.*, p. 7.

⁸ *Ibid.*, pp. 53 and 54.

⁹ Mintzberg, Henry, *The Rise and fall of Strategic Planning: Reconceiving Roles for Planning, Plans, Planners*, (New York: The Free Press, 1994).

¹⁰ *Ibid.*, p. 2.

¹¹ Schwartz, Peter, *The Art of the Long View: Planning for the Future in an Uncertain World*, (New York: Doubleday, 1996), p. 3.

¹² *Ibid.*, p. 4.

Scenario development approach

Scenario development involved three major steps:

- A top-down, global analysis
 - Spanning three levels: International System, Nation-State, and Individual/Group
 - Covering six dimensions: Economics, Politics, Technology, Culture, Environment, and Security
- A detailed regional analysis
 - Across five regions: Western Hemisphere, Europe, Africa, Middle East, and Asia/Australia
 - At five levels: Inter-Regional, Regional, Intra-Regional, National, and Sub-National
- Examination of 4 scenarios
 - Developed using the global and regional analyses
 - Used to assess frequency of threats and crises and likelihood of a U.S. military response

The global and regional analyses built on an earlier CNA effort¹³ and used scenario planning methods—adapted from the work of Royal Dutch/Shell, Pierre Wack, and Peter Schwartz¹⁴.

Top-down, global analysis

In our development of alternative futures, we used Kenneth Waltz's *Man, The State and War*, regarded as a classic among the literature on origins of war, as a means to examine three levels of interactions (or to use his terminology three "images"):

- International system
- Nation-state
- Human nature (Individuals and groups below the nation-state level)

We wanted to avoid pitfalls associated with focusing too narrowly on security considerations. Often, such an approach gives rise to implausible scenarios like a "Mad Max world," "rogue states world," or, "failed states world". It is worth considering worst-case security considerations—and we do—but a world filled with nothing but worst-cases isn't useful for thinking about likely futures. So rather than looking just at the security dimension, we used six separate "global lenses":

- Economics
- Politics
- Technology (focusing on information technology)
- Culture

¹³ Barnett, Thomas P.M., and John J. Nelson, *The U.S. Marine Corps and Non-Lethal Weapons in the 21st Century: Annex A—Alternative Global and Regional Futures*, Quick-response Report 98-9, Center for Naval Analyses, Alexandria, Virginia, September 1998.




¹⁴ Pierre Wack, "Scenarios: Uncharted Waters Ahead," *Harvard Business Review*, September/October 1985, pp. 73-89; Wack, "Scenarios: Shooting the Rapids," *Harvard Business Review*, November/December 1985, pp. 139-150; and Peter Schwartz, *The Art of the Long View: Paths to Strategic Insight For Yourself and Your Company* (New York: Currency Doubleday, 1991)

- Environment
- Security

These six lenses capture what Thomas Friedman, in his 1999 book *The Lexus and the Olive Tree*, describes as the six essential “dimensions” of thinking that any serious analyst must employ when trying to understand the all-encompassing theme of globalization.¹⁵ It is by examining global drivers through these six lenses that we achieve the breadth of vision needed to capture the full range of key trends and uncertainties that will shape the planet’s development over the coming years.

For each of Waltz’s three levels and for each of the six lenses, we identified a key theme as shown in Figure 3.

Figure 3. Key themes associated with top-down, global analysis

	Economics	Politics	Technology	Culture	Environment	Security
System 	Money	Inclusion	Protocols	Infosphere	Stress	Transparency
State 	Rules	Globalization	Connectivity	Kulturkampf	Energy	Enforcement
Individual 	Competency	Movements	Access	Aging	Biotech	Privatization

For each of these themes, we identified a paired set of questions and associated each of the four possible answer combinations with one of four global pathways. In this way, we carefully defined each of the pathways and had complete traceability via the questions and themes. Also for each theme, we identified a spotlight to help determine which of the four possible answer combinations—and hence which of the four pathways—appears most likely.

The four pathways

The global analysis provided initial description for the four alternative pathways, and the regional analysis provided increased resolution. Using an information technology analogy, the four pathways are as follows:

¹⁵ Friedman, Thomas L., *The Lexus and the Olive Tree: Understanding Globalization* (New York: Farrar Straus & Giroux, 1999).

- *Network.org* – As the name suggests, this pathway’s overarching direction is one of increased integration. The dominant image here is one of states moving closer together in a way that enables greater interactions. The historical period that most closely resembles this scenario is the boom times of late 19th Century, when the world began its first great phase of globalization and the telegraph was heralded in much the same way as the Internet is today. In security terms, this is a very “preventive” world, full of transparency among the system’s great military powers that eventually leads to condominium (i.e., the increasing “inter-locking” of military capabilities).
- *WildWildWeb.com* – This pathway suggests a loosely linked world. The dominant image here is a frenetic world that outpaces the ability of states to set rules or impose controls. The frequency and volume of human interactions across borders and around the globe race beyond their capacity for regulation. The best historical analogy here is probably the Roaring Twenties. In security terms, this is a more raucous world, where self-protection is a far more individualized matter—both at and below the state level.
- *Firewall.gov* – Along this pathway, regional blocs would emerge and seek to regulate interactions with the outside world. The dominant image here is one of like-minded states erecting techno-cultural “moats” along their collective boundaries in an attempt to preserve their distinctiveness within an increasingly homogenized world. The best historical analogy here is probably the early period of the Cold War era. In security terms, we speak of flash points along the borders between blocs, but little uncertainty within them.
- *Standalone.mil* – This pathway sees a world fragmented into numerous small units. Boundaries are strictly regulated by security controls, providing an “air gap” between an “inside world” that seeks a “decontaminating distance” from the chaotic “outside world.” Here, technological advance neither integrates nor provides something against which to rally. It is an atomizing of the “global village.” The best historical analogy here is probably the Great Depression of the 1930s. In security terms, we speak of a “short horizon,” i.e., these “small towns” worry about themselves and maybe the next town or two over.

Of course, as the future unfolds, circumstances will change, and current assessments will either be proven correct or incorrect. Often, this poses a real problem for an analysis of future alternatives. This is particularly true for analyses that offer only one alternative future: there, if an assumption or assessment proves incorrect, it disrupts the foundation that underpins everything that follows. One of the powerful features of this scenario planning approach is that it accommodates such changes gracefully. Here, if an assessment (one of the spotlights) changes, it merely means a shift toward one of the other pathways. Changes in assumptions can be accommodated by revisiting the themes, and the associated questions, to determine whether they still represent driving factors.

Regional Analysis

Having completed the top-down, global analysis, we turned to an analysis of key regions.

Clearly, not all regions will proceed down the same pathway in lock-step. Just as different geographic regions experienced distinct histories so too will they experience distinct futures. Different regions will show varied levels of progress, different concerns and priorities, and distinct inter- and intra-regional interactions. Moreover, the U.S. will interact with different regions in different ways.

In analyzing regions, we followed an approach similar to the top-down global analysis. We examined five major geographic regions:

- Western Hemisphere
- Europe
- Africa
- Middle East
- Asia/Australia

And we examined interactions at five different levels:

- Inter-regional
- Regional
- Intra-regional
- National
- Sub-national

For each combination of a region and a level, we identified: a theme (illustrated in Figure 4), a paired set of questions for each theme, a match from each of the four possible answer combinations to one of the four pathways, and a spotlight to help indicate which pathway appears most likely.

Figure 4. Key themes from the analysis of regions

	Western Hemisphere	Europe	Africa	Middle East	Asia
Inter-Reg'l	Last Resort	Atlantic Bond	Capital Flows	Co-dependency	Leviathan
Reg'l	New Economy	Old Fears	Recolonization	Next Generation	China
Intra-Reg'l	All in the Family	Ostpolitik	Pillars	Water	Rivalries
Nat'l	Generations	Deregulation	Virtual States	Reengineering	Permeability
Sub-Nat'l	Losers	Balkanization	AIDS	Islamism	Consumerism

The regional analysis provided an even more detailed description of the four alternative pathways. This set the stage for development and analysis of specific scenarios, topics discussed in the Key Findings section.

After completing our assessment of possible alternative futures we “benchmarked” the results with those of other recent defense related studies that postulate how the world might evolve from now until 2025. The most extensive comparison was made by examining material on future security environments contained in the reports of the Commission on Roles and Missions of the Armed Forces (May 1995), the Quadrennial Defense Review (May 1997), the Defense Reform Initiative (November 1997), the National Defense Panel (December 1997), and the United States Commission on National Security/21st Century.

Although all these reports allude to likely future settings for national security, only the reports of the National Defense Panel and the Commission on National Security/21st Century contain substantive information on alternative future worlds. The other reports simply list key elements of expected changes or provide a general description of possible forthcoming security environments. Interestingly, three of the four pathways developed in this study correspond in many respects with three of the National Defense Panel’s “Alternative Worlds” and the three “Worlds in Prospect” of the Commission on National Security/21st Century. The fact that two independent studies produced results generally similar to those in this study increase our confidence in the methodology used and the validity of the findings. Unlike any of the other reports, however, this report, in Annex A, contains considerable detail on the nature of these alternative futures.

A survey was also made of Service-led activities such as the Army After Next project and the U.S. Marine Corps’ series of “Strategic Surprise” seminars to learn what sort of future world they postulated for the first

quarter of the 21st century. Generally, these endeavors prove to be single focused. Current and anticipated trends in demographics, technology, and economics are simply projected out for 20 or 25 years to *one* future. Furthermore, the methodology lacks robustness. As a result, the utility of these forecasts is extremely limited

The Illustrative Planning Scenarios used by the Office of the Secretary of Defense and the Joint Staff in the development of the Defense Planning Guidance, identification of potential requirements, and studies and analyses efforts were considered as well. The usefulness of the Illustrative Planning Scenarios to this study was determined to be marginal because of their relatively short time-horizon, 2005.

Applying the alternative futures analysis

The alternative futures analysis served several purposes. First, it focused on the full range of threats and crises rather than treating all smaller contingencies as lesser included cases of the Two MTW planning construct. This is important when examining non-lethals, which apply frequently in such contingencies. Second, the disciplined approach explicitly captured assumptions, making the analysis traceable and repeatable. Third, the broad, top-down approach made it less likely that key factors would be missed. Finally, the alternative futures connect to the next step in the methodology, *Operational Context*. For each of the four scenarios, we assessed the frequency of different types of threats and crises and also assessed the likelihood of a U.S. military response.

Operational Context¹⁶

The operational context pillar covers both the spectrum of threats and crises—divided into seven different levels—and 20 specific types of military operations. These are listed in Table 1. We derived this primarily from an examination of real-world operations, complemented by a review of doctrinal materials.

Table 1. Spectrum of threats and crises and types of military operations

Spectrum of threats and crises	Types of military operations	
<ul style="list-style-type: none"> ▪ Domestic Emergencies ▪ Homeland Defense ▪ Peacetime Operations ▪ Smaller-Scale Contingencies (SSCs) ▪ Major Theater of War (MTW) 	<ul style="list-style-type: none"> ▪ Combat Operations ▪ Blockade ▪ Freedom of Navigation ▪ No-Fly Zone ▪ Demonstration/ Show of Force ▪ Non-Combatant Evacuation Operations ▪ Counter-Narcotics 	<ul style="list-style-type: none"> ▪ Combat Search and Rescue (CSAR) ▪ Humanitarian Assistance Operations ▪ Peacekeeping ▪ Peace Enforcement ▪ Observer Missions ▪ Counter-Insurgency ▪ Insurgency Support

¹⁶ Annex 2 presents detailed information

(MTW)	<ul style="list-style-type: none"> ▪ Maritime Interdiction Operations ▪ Counter-Terrorism ▪ Anti-Terrorism 	<ul style="list-style-type: none"> ▪ Special Operations ▪ Support Operations ▪ Security Operations
<ul style="list-style-type: none"> ▪ Multiple MTW ▪ Global War 		

In establishing the connection between tasks and operational context, we examined whether the use of non-lethals to perform a task would support a given military operation at different levels on the spectrum of threats and crises. As there are 1457 UJTLs and Service tasks, 20 types of military operations, and seven levels on the spectrum, the number of combinations was very large.

Consequently, we identified ways to reduce the number by filtering out irrelevant combinations. For example, of the 1457 tasks, non-lethals are applicable to about 25 percent (Lethals are also applicable to about 25 percent.). There are many tasks—such as those related to information processing or to providing logistics support—where the employment of non-lethals (or lethals) is not relevant to the accomplishment of those tasks.

We also filtered out combinations by identifying tasks that weren't relevant to a given type of military operation. For example, a task such as applying national strategic firepower isn't relevant to the conduct of a purely humanitarian assistance operation. And, we filtered out combinations by identifying military operations that aren't relevant at certain levels of the spectrum of threats and crises. For example, an observer mission has low importance in the context of a global war; and combat operations aren't applicable to a domestic emergency.

The analysis connecting operational context with tasks showed how and where non-lethals could apply to future military operations. Results from this analysis (the Key Findings section presents an overview, and the Annexes contain the details) tie non-lethals to the tasks they help accomplish to the types of military operations those tasks support to the levels of the spectrum of threats and crises where those operations are relevant.

Tasks¹⁷

The tasks pillar is composed of all tasks in the Universal Joint Task Lists (UJTLs) and Service tasks. This totals 1457 tasks.

The hierarchy covers the Strategic National (SN), Strategic Theater (ST), Operational (OP), and Tactical (TA) levels, with the Tactical-level tasks including Army Tactical (ART), Air Force Tactical (AFT) and Naval Tactical (NTA) tasks.

A careful review of the tasks revealed eight categories:

- Mobilize, deploy, move and maneuver forces
- Conduct Intelligence, Surveillance & Reconnaissance (ISR)

¹⁷ Annex 3 presents detailed information

- Employ forces and fires
- Sustain, support, and provide logistics/CSS to forces
- Provide direction, integration, and command and control
- Support force development and readiness
- Promote multi-national and inter-agency relations
- Provide force protection

In our analysis of tasks, we identified where non-lethals were applicable. In some cases, tasks explicitly indicated the actual use of non-lethals (or lethals) in the task description. Many tasks—all of the tasks associated with information processing or force sustainment, for example—would not involve the actual use of lethals or non-lethals in the accomplishment of the task. For other tasks, we examined all possible operational contexts to determine whether application of non-lethals would support task accomplishment in any operational context. From this, we identified about 360 tasks where non-lethals are potentially applicable.

For this set of tasks, we examined every non-lethal technology against each task’s requirements. For each task, we used criteria to determine whether a given technology could fully, largely, partially, minimally, or could not support task accomplishment. Highlights from this effort are included in the Key Findings section, and detailed results are in Annex 5.

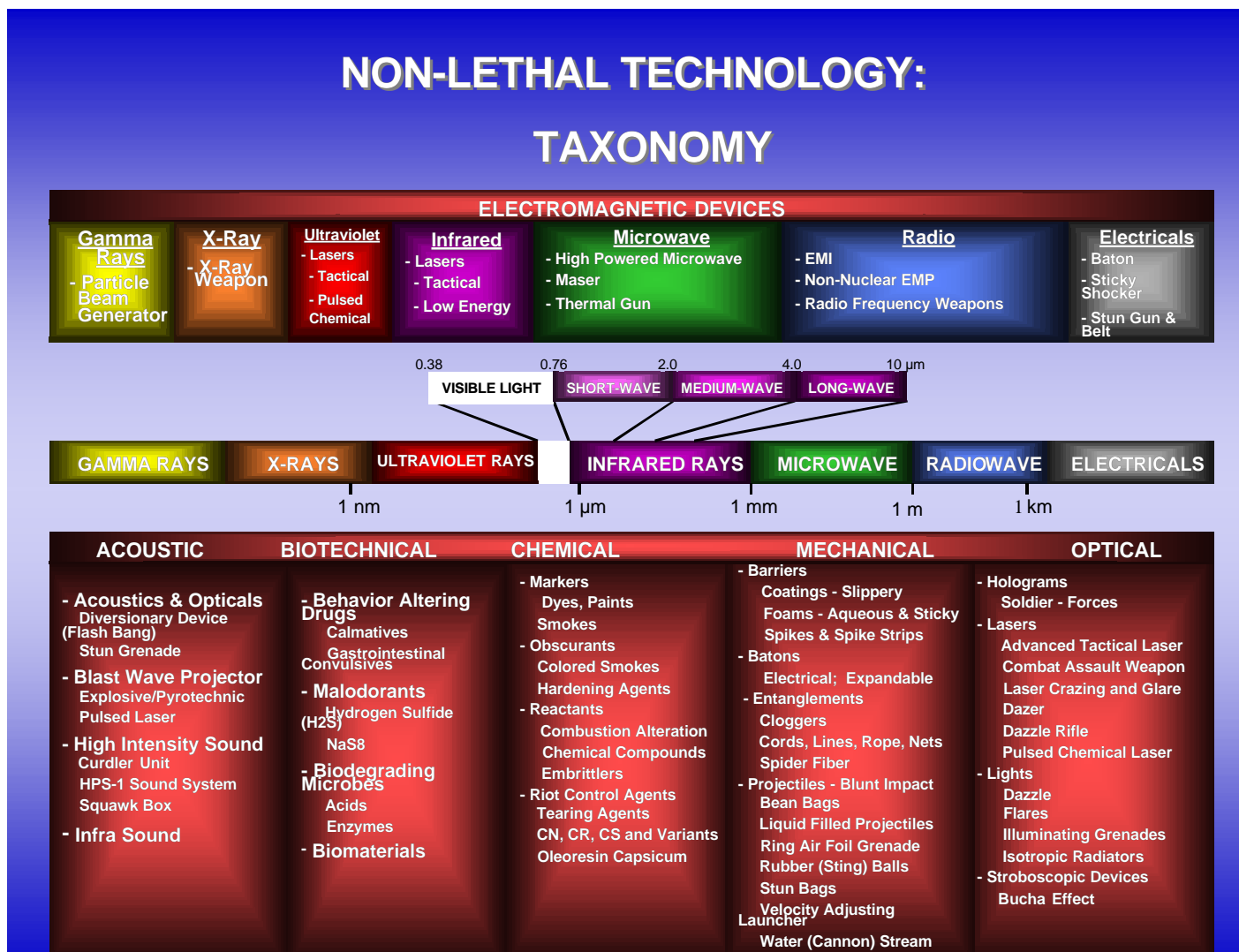
Technologies¹⁸

The final pillar is Technologies. The Joint Non-Lethal Weapons Directorate directed the use of the existing taxonomy of technologies (shown in Figure 5). The taxonomy organizes non-lethal technologies into six major categories: acoustic, biotechnical, chemical, mechanical, optical, and electromagnetic.

As noted, the potential capabilities of all non-lethals were compared with task requirements to connect the Technologies and Tasks pillars. The assessment of non-lethal technologies potential capabilities should not be viewed as a final one. Technologies will mature over time, and so the assessment will need to be periodically performed in order to stay current with developments. Also, the assessment should be refined by involving individuals with greater subject matter expertise on individual technologies. We had a general understanding based on reference material describing different non-lethals. A final caveat: the taxonomy presents types of technologies rather than specific technologies; consequently, the current assessment is somewhat general, covering a variety of potential technologies that span a given type.

¹⁸ Annex D presents detailed information

Figure 5. Taxonomy of non-lethal technologies



Key Findings

This section presents key findings and discusses potential implications.

Threats and crises that emerge in different alternative futures

The purpose of the alternative futures analysis was to get some sense for the types of threats and crises that may be encountered, the frequency with which these threats and crises emerge, and the likelihood of a response involving the U.S. military. We approached these issues by developing and examining scenarios.

Four scenarios

Based on the global and regional analyses, we developed and examined four scenarios, each modeled along the lines of one of the major alternative pathways described previously.

The Best vs. The Rest

This scenario lies closest to the *Network.org* path. It's basically the coming together of the two most advanced economic regions (North America and Europe) with the two biggest "comers" (South America and Asia). The closest historical analogy to this scenario is the first wave of globalization. This occurred roughly between the end of the U.S. Civil War and the onset of World War I. Given the nature of this scenario, the frequency of threats and crises would likely decline across the spectrum of threats and crises for most regions. The exception is the Middle East, which pursues a separate path, isolating itself from other regions and becoming marginalized as a result. While the frequency of threats and crises declines, when a crisis emerges, the likelihood of a response involving the U.S. military would be higher than it currently is.

Through a review of the spotlights associated with each of the themes identified in the global and regional analyses, we assessed this as the most likely scenario. So, if the future unfolds along this pathway, the U.S. military is much less likely to be confronted with global war or multiple MTWs. Threats and crises at the MTW level would be less likely, with the exception of the Middle East where there is an increased likelihood. Threats and crises at the SSC and Peacetime Ops levels will occur at about the current frequency in Africa and the Middle East and at a somewhat lower frequency elsewhere. In terms of operations in the U.S., domestic emergencies will occur at about the same frequency (given that most are tied to natural disasters), and homeland defense will be somewhat more likely. Given the almost across the board increase in the likelihood of a response involving the U.S. military, smaller-scale contingencies and peacetime operations, especially in the Middle East and Africa will be most frequent, and the single most dangerous case is an MTW in the Middle East.

The Eastern Open

This scenario lies closest to the *WildWildWeb.com* path. It's basically Asia and the Middle East opening up simultaneously to the outside world (both undergoing Gorbachev and/or Deng-like makeovers). The United States serves as the major outside influence, especially in Mideast peace. Meanwhile, Europe is spooked by all this turbo-capitalism and its own European Union (EU) difficulties and withdraws. Africa moves toward bargaining collectively with the increasingly wide-open nature of the global economy. So in this scenario you basically have the Asian Century come to fruition, and the U.S. shifts its focus from the Atlantic to the Pacific. The historical analogy here is to the Roaring Twenties. Threats and crises are more likely in the middle of the spectrum, with an increased frequency of peacetime operations, SSCs, and MTWs. But, in this more laissez-faire scenario, the likelihood of a U.S. military response declines for peacetime operations and SSCs, except in the Western Hemisphere where the likelihood of a response would increase.

This is the next most likely scenario given our current assessment of the spotlights. As in the more likely *Best vs. Rest* scenario, the most common threats and crises involving a U.S. military response will be SSCs and Peacetime Ops. But, an MTW is more likely in this scenario. So, this is a slightly more dangerous scenario.

The Bend of History

This scenario lies closest to the *Firewall.gov* path. The U.S. tries to push a U.S.-centered "network solution" for the world. But this is rejected, triggering a firewall situation in Asia and the Middle East and Europe's pursuit of its own "network." With major regions strongly pursuing their own courses and keeping other regions at a distance, this scenario sees the reemergence of blocs. The historical analogy here is to the Cold War period of the fifties and sixties. This is the one scenario where threats are at the high end of the spectrum (although regions look after themselves, reducing the number of threats and crises lower on the spectrum). In terms of the likelihood of a U.S. military response, this will increase at the high end of the spectrum but decline elsewhere.

This is not a likely scenario given our current assessment of the spotlights, but it is the most dangerous scenario. Given the emergence of rival blocs, this is the one scenario that shows an increased likelihood of global war.

The Great Regression

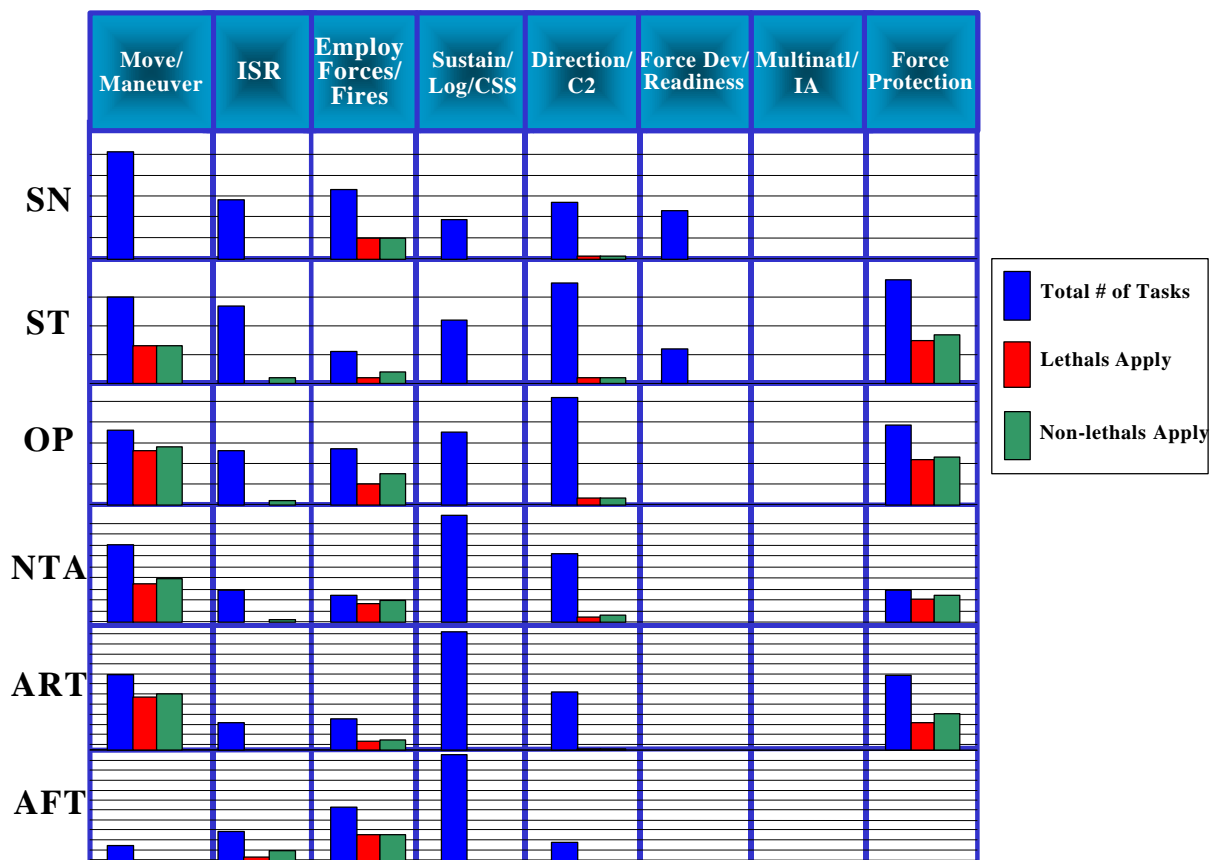
This scenario lies closest to the *Standalone.mil* path. It's basically the United States suffering a significant economic disturbance (New Economy bubble burst, setting in vicious cycle of deflation a la Japan in the 1990s) and withdrawing from the world. This triggers reversions elsewhere (Europe stays united, while other regions devolve into "security dilemma" status more akin to the 1930s). It's basically every region for itself, with a divided West largely looking after its own neighborhoods. The historical analogy here is to the Global Depression of the 1930s. The frequency of threats and crises rises across all regions and at almost all levels of the spectrum of threats and crises, but the likelihood of a U.S. military response declines everywhere but in the Western Hemisphere.

This is the least likely scenario, although it is a dangerous one, with an increased frequency of threats and crises from Peacetime Ops through Multiple MTWs.

Applicability of non-lethals to UJTLs and Service Tasks

As noted, most current non-lethals focus on tactical-level, force protection applications. The group examined potential future applicability of non-lethals (and lethals) across all UJTLs and Service tasks, summarizing the results in Figure 6.

Figure 6. Lethal and non-lethal applicability across all tasks



Lethals and non-lethals are each applicable to about one quarter of the 1457 tasks (Each line across one of the scales—and the figure has separate scales for SN, ST, OP, NTA, ART, and AFT—represents 10 tasks). Neither lethals nor non-lethals are applicable for many tasks—such as *Collate Theater Strategic Information* (ST 2.3.2) or *Supply Operational Forces* (OP4.5.2)—because you would not use lethals or non-lethals in order to accomplish those tasks. For tasks where either lethals or non-lethals are applicable, in the large majority of cases—about 90 percent—both are applicable. There are, however, tasks that explicitly call for lethals or non-lethals, e.g. *Attack Strategic Targets* (whose task definition specifically calls for “using lethal

means”) or *Apply National Non-Lethal Capabilities*. Although lethals and non-lethals may both be applicable to a given task, that is not to say that they are equally relevant. Relevance depends on operational context and on capabilities, subjects addressed shortly.

A review of Figure 6 reveals several important points. Applicability of non-lethals is not confined to Force Protection tasks nor is it confined to the Tactical level. The example just cited—*Apply National Non-Lethal Capabilities (SN 3.4.1)*—is at the Strategic National level and is associated with Employ Forces/Fires. The figure clearly illustrates this is not an isolated example. There are 71 tasks or sub-tasks at the Operational level where non-lethals are applicable, 38 at the Strategic Theater level, and 11 at the Strategic National level. Task applicability is largest in number at the Tactical level because the total number of tasks at that level is considerably larger than at the higher levels. Non-lethals are applicable to 246 Tactical-level tasks, 109 Army tasks, 84 Naval tasks, and 53 Air Force tasks.

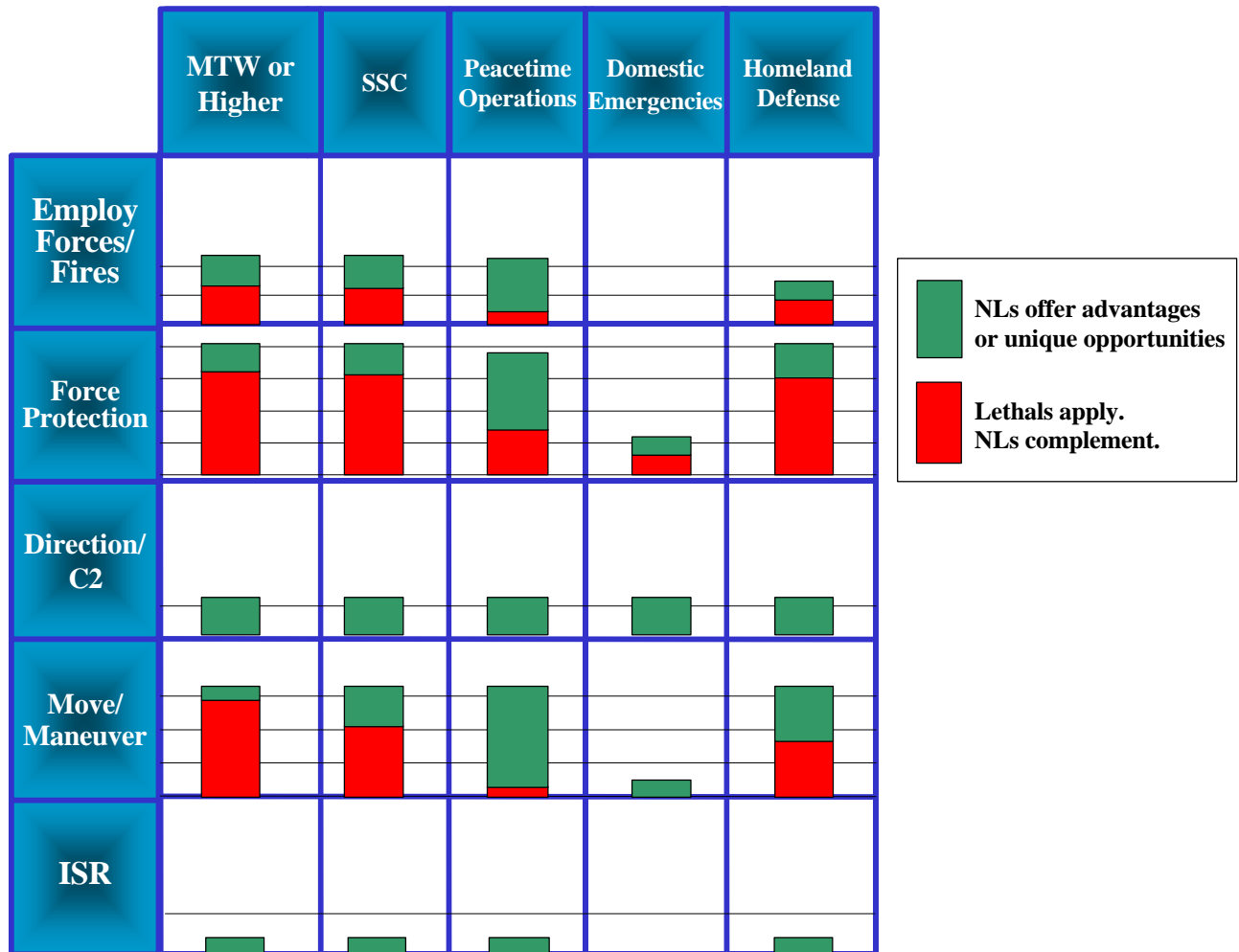
In terms of applicability across the categories of tasks, there are three major areas: *Move/Maneuver*, *Employ Forces/Fires*, and *Force Protection* where non-lethals apply frequently. There are a smaller number of opportunities—many of which are related to deception—supporting *Direction/C2*. And, there is one specific area—related to the capture of individuals to support Intel efforts—supporting *ISR*.. For two types of tasks—*Sustainment/Logistics/CSS* and *Force Development and Readiness*—non-lethals have almost no applicability. For the final category, *Multi-National and Inter-Agency*, the figure shows asterisks. The reason for this is that we’ve addressed the tasks in this category—such as *Support Peace Operations*—under operational context because the tasks really address types of military operations.

Operational Relevance of Non-Lethals

Examining the potential applicability of non-lethals has value because it shows where non-lethals could contribute throughout the hierarchy and categories of tasks. It demonstrates not only that employment could go well beyond Tactical-level, Force Protection but also shows where there are opportunities for unique contributions.

Examining potential applicability does not, however, address relevance within an operational context. Now, we turn to the issue of operational relevance. The focus is on how and where non-lethals can contribute, issues of obvious importance in targeting the development of non-lethals toward the greatest opportunities. Figure 7 shows a summary of work analyzing how and where non-lethals could contribute to different types of tasks at each level on the spectrum of threats and crises.

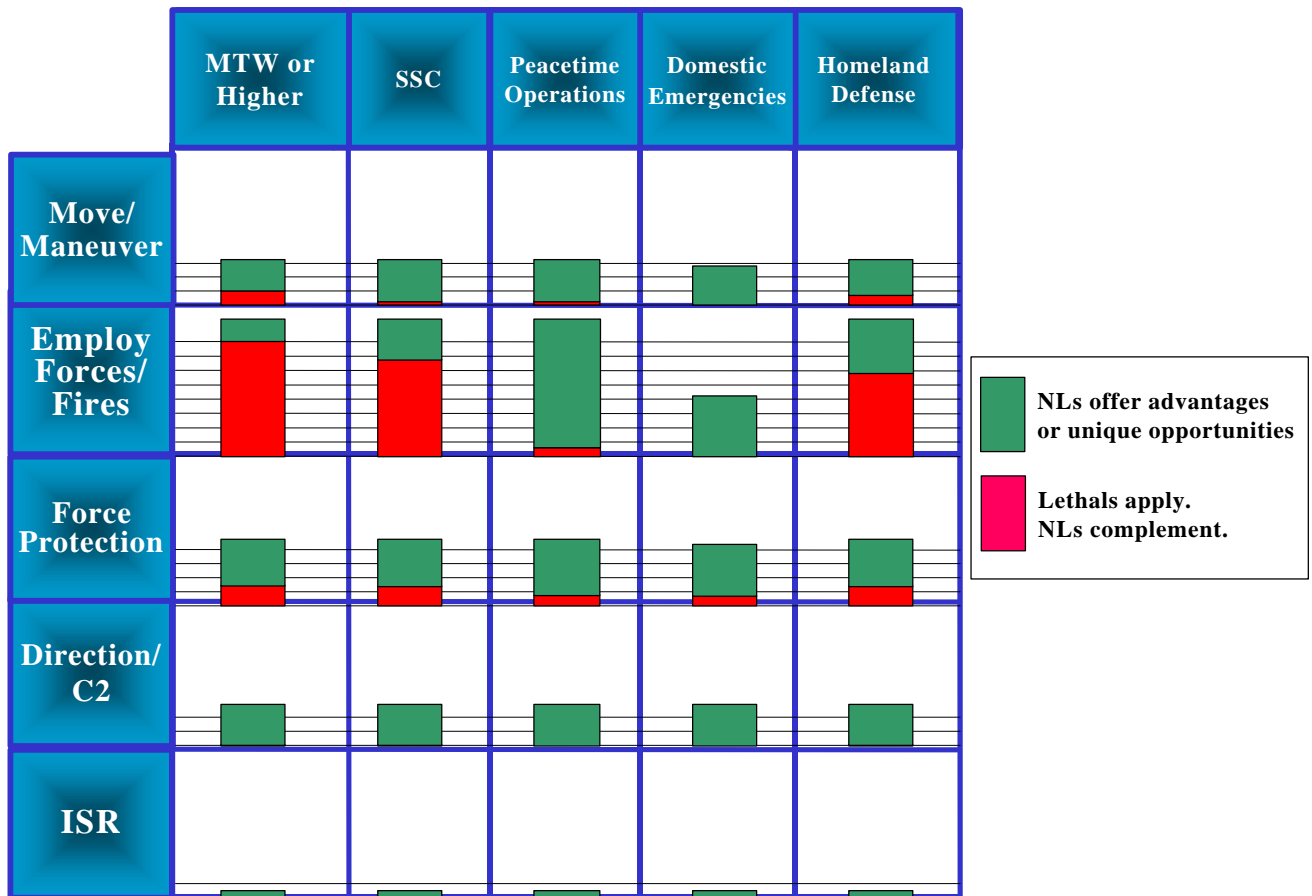
Figure 7. Non-lethal contributions to different types of tasks across the spectrum of threats and crises (Strategic and Operational tasks)



The results presented in Figure 7 are for strategic and operational tasks (SN, ST, and OP tasks). Similar results for the tactical tasks identified in the Service task lists (AFT, ART, and NTA tasks) are presented in Figure 8.

As in the previous figure, each line in the scale represents 10 tasks. The red bars show the number of tasks where lethals are applicable and likely to play a primary role, but where non-lethals could play a complementary role (depending on the capabilities offered by technologies). The green bars show the tasks where non-lethals may offer advantages relative to using lethal force or where there are unique opportunities for non-lethals.

Figure 8. Non-lethal contributions to different types of tasks across the spectrum of threats and crises (Tactical tasks)



Tasks in these green bars merit highlighting. Targeting development of non-lethal technologies toward these tasks adds more than just complementary capabilities. Unique opportunities include those tasks that explicitly call for the use of non-lethals as well as tasks that don't lend themselves to accomplishment using lethal systems. The number of tasks falling in the latter category increase as the intensity of the threat or crisis decreases, i.e. for some tasks lethals will play the primary role in an MTW; non-lethals may offer advantages in an SSC; and lethals may not be applicable in a Domestic Emergency.

The results for MTW, Multiple MTW, and Global War were the same, so we displayed a single column—MTW or Higher—representing all three. Not surprisingly, lethal systems play a primary role for more tasks at the MTW or Higher level than they do for threats and crises lower on the spectrum. In looking at any of the rows, this pattern becomes apparent, with the largest red bar appearing in the MTW column and smaller red bars in the other columns (particularly the Peacetime Operations and Domestic Emergencies columns).

Even at the MTW or Higher level, however, there are opportunities for non-lethals. This is shown by the green bars. There are tasks that apply in MTWs

that explicitly call for the use of non-lethals. There are tasks where lethals aren't very relevant, such as *Assist the Host Nation in Populace and Resource Control* (OP 1.5.5). There are also tasks where non-lethals may offer potential advantages. One example is counter-mobility. There are multiple tasks associated with interdicting lines of communications or establishing obstacles and minefields. Here, reversibility of effects may offer important advantages, such as being able to prevent an adversary's use of a bridge without destroying it, thereby enabling later use by friendly forces. Even in tasks where lethals are likely to play the primary role (the red bars), there may be valuable complementary capabilities offered by non-lethals. For example: there are several tasks associated with degrading weapons of mass destruction production and delivery systems. This is clearly a vital task, and in an MTW, lethals would be applicable. However, if friendly forces are operating in the vicinity, degrading these systems using non-lethal weapons may reduce the risk of a chemical, biological, or radiological release, which may prove very advantageous.

Important Opportunities

The analysis of tasks identified areas where non-lethals offered advantages relative to lethals or represented unique opportunities. These areas represent particularly valuable opportunities, as benefits are greater here than for tasks where lethals apply and non-lethals only provide complementary capabilities.

The ongoing analysis of technologies is indicating which non-lethals offer the greatest potential for accomplishing specific tasks.

Combining these two pieces highlights technologies that appear best suited to accomplishing tasks of particular importance. Table 2 summarizes these results. Non-lethals offer advantages or unique opportunities for these tasks at all levels of the spectrum of threats and crises, even for MTWs and beyond. Additional opportunities arise at the lower end of the spectrum, particularly for peacetime operations and domestic emergencies, where lethals aren't as applicable.

Table 2. Important opportunities for non-lethals

Key areas where non-lethals offer significant or unique advantages relative to lethals	Non-lethal technologies potentially applicable to these tasks
Creation or enhancement of a target's signature (Support ISR and employment of fires)	<ul style="list-style-type: none"> ▪ Taggants/Markers
Counter-mobility and area denial effects (Reversibility is key to denying an adversary's use while preserving opportunities for friendly use)	<ul style="list-style-type: none"> ▪ Calmatives ▪ Malodorants ▪ Entanglements ▪ Reactants
Degrading WMD production and delivery systems (Non-lethals could reduce the risk of NBC release)	<ul style="list-style-type: none"> ▪ Electromagnetic ▪ Reactants ▪ Bio-degrading microbes
Deception (Affect—positively or negatively—perceptions)	<ul style="list-style-type: none"> ▪ Obscurants ▪ Optical technologies

Breaching (Facilitate movement and maneuver over and through barriers obstacles, and mines)	<ul style="list-style-type: none"> ▪ Barrier foams
Capture individuals for Intel purposes (This requires non-lethal means)	<ul style="list-style-type: none"> ▪ Counter-personnel technologies
Protect forces and facilities	<ul style="list-style-type: none"> ▪ Most of the taxonomy

Based on the analysis of tasks and technologies, there are opportunities that don't fall naturally under any of the six non-lethal functional areas. These six functional areas include four counter-personnel areas:

1. Incapacitation of personnel
2. Crowd control
3. Area denial to personnel
4. Clearing facilities of personnel

And, they include two counter-materiel areas:

1. Area denial to vehicles, ships, and aircraft
2. Disabling or neutralizing equipment or facilities

None of these areas naturally captures opportunities such as creating or enhancing signatures, using deception, or conducting breaching operations.

Non-lethal technologies versus task requirements

This section presents an overview of results from an analysis of tasks and technologies. Annex 4 contains detailed results.

The *potential* capabilities offered by the 55 different types of non-lethal technologies included in the taxonomy were compared against the requirements associated with the approximately 360 tasks where non-lethals are potentially applicable.

For each type of non-lethal technology, criteria were applied to determine whether the technology's potential capabilities could accomplish a task:

- Fully
- Largely
- Partially
- Minimally
- Not at all

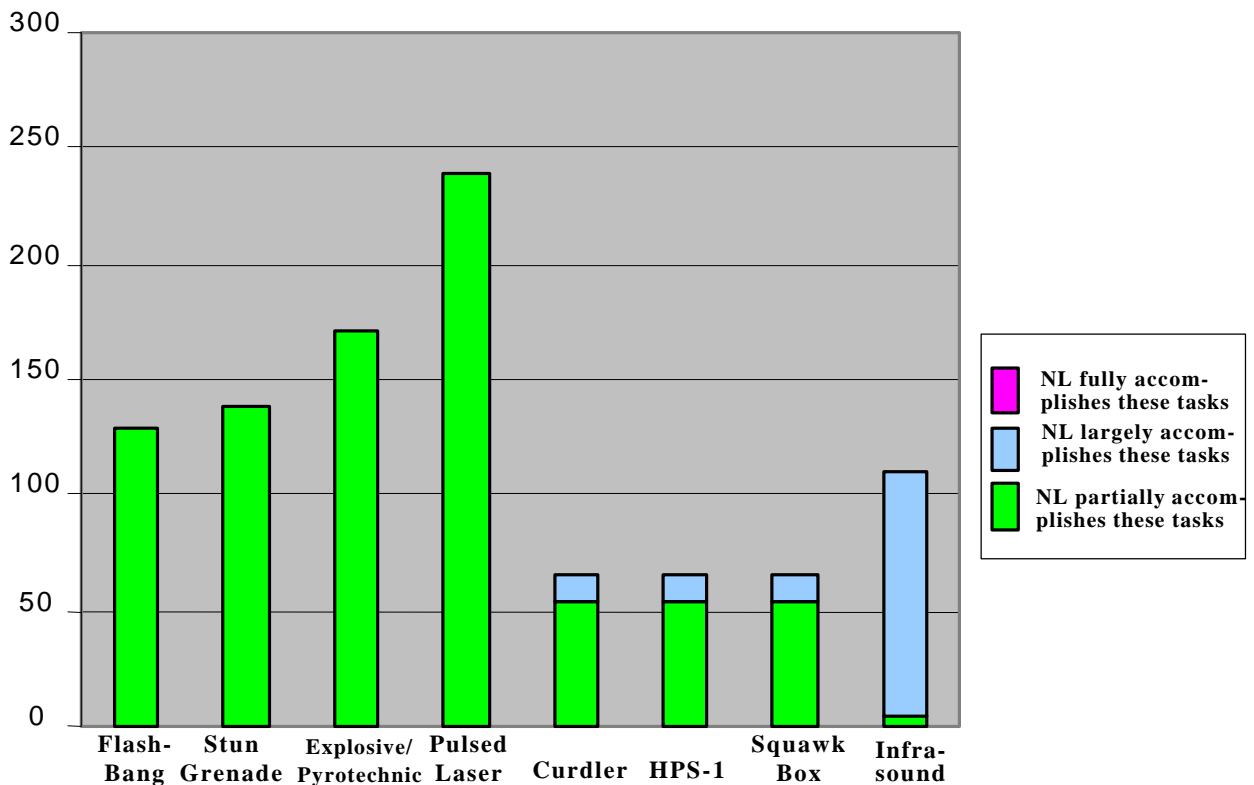
The assessment of non-lethal technologies potential capabilities should **not** be viewed as a final one. Technologies will mature over time, and so the assessment will need to be periodically performed in order to stay current with developments. Also, the assessment should be refined by involving individuals with greater subject matter expertise on individual technologies. We had a general understanding based on reference material describing different non-lethals. A final caveat: the taxonomy presents types of

technologies rather than specific technologies; consequently, the current assessment is somewhat general, covering a variety of potential technologies that span a given type.

The figures presented in this section (Figures 9 through 15) show the number of tasks that a given technology could fully, largely, or partially accomplish.

The next figure, Figure 9, provides results for the various types of acoustic technologies.

Figure 9. Acoustic technologies—Potential capabilities vs. task requirements

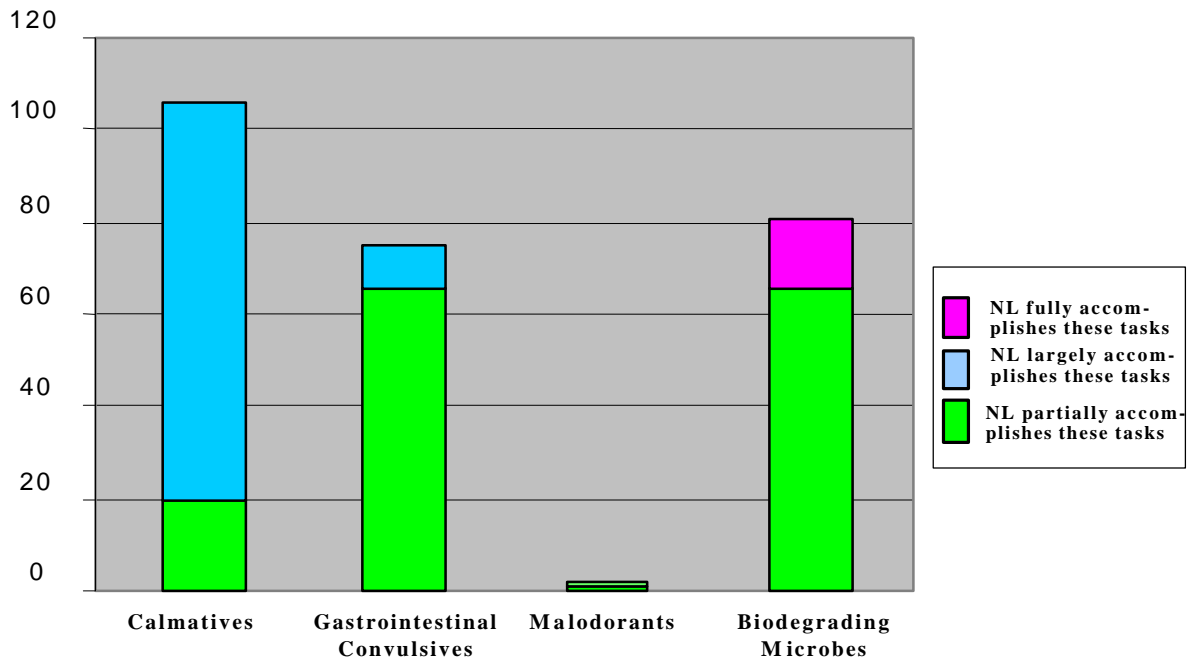


The figures in this section enable comparisons between different non-lethal technologies. Comparisons can be made both in terms of the number of tasks a technology could potentially support and the level of support—*fully accomplish*, *largely accomplish*, *partially accomplish*, *minimally accomplish*, or *not accomplish*.

So, as illustrated in the figure above, the potential blast wave projection capabilities associated with a pulsed laser support the *partial accomplishment* of more tasks than the other acoustic technologies. If infrasound technologies were to realize their potential capabilities, they would *largely accomplish* more tasks than the other acoustic technologies.

Figure 10 presents similar results for the different types of biotechnical technologies.

Figure 10. Biotechnical technologies—Potential capabilities vs. task requirements



Calmatives have the potential to partially or largely accomplish more tasks than the other types of biotechnical non-lethals. Calmatives are also noteworthy for their ability to support counter-mobility and area denial tasks where non-lethals offer advantages relative to lethals.

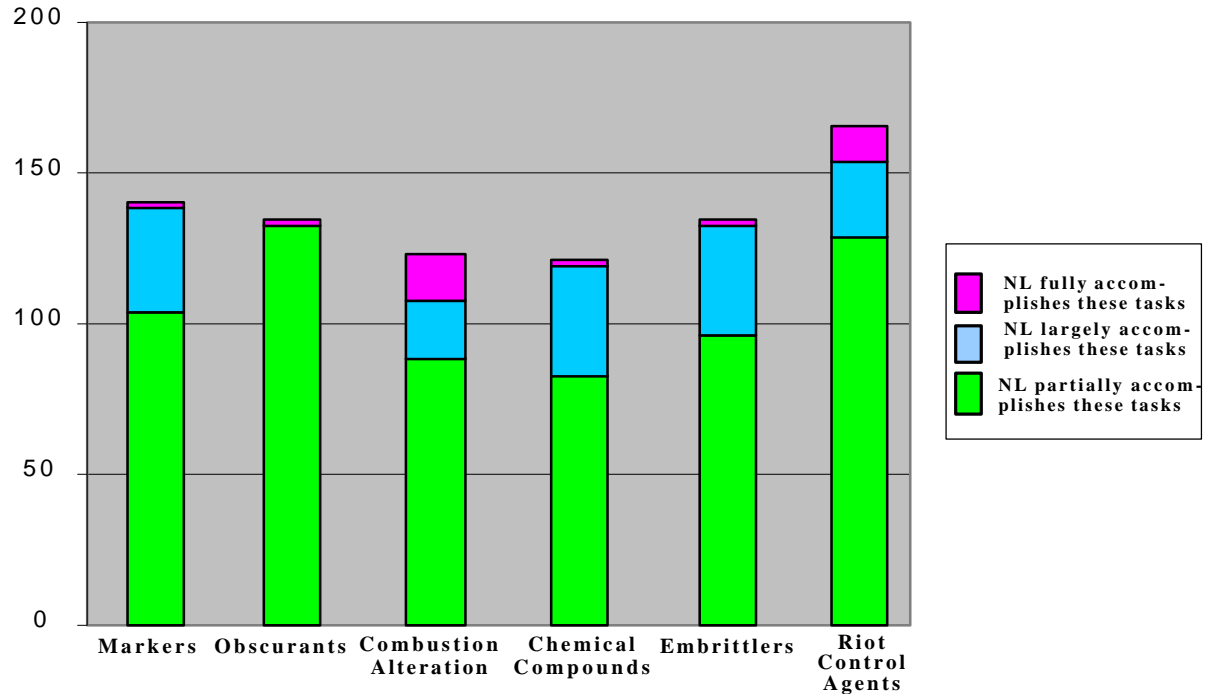
Biodegrading microbes could support the accomplishment of about 80 percent as many tasks as calmatives, while at the same time offering the potential to fully accomplish 15 tasks. Biodegrading microbes may also offer a means to degrade WMD facilities with reduced risk of NBC exposure relative to lethals.

Gastrointestinal convulsives support almost as many tasks as biodegrading microbes but don't fully accomplish any tasks. Finally, although malodorants support very few tasks at the partial accomplishment level, they do provide minimal support to more than half of all tasks.

Compared to the acoustic technologies, the biotechnicals support fewer tasks at partial accomplishment or greater levels, although biodegrading microbes could fully accomplish tasks and none of the acoustic technologies appear to offer this level of capability for any tasks.

Figure 11 continues the presentation of results, with a depiction of chemical technologies' potential capabilities to accomplish tasks.

Figure 11. Chemical technologies—Potential capabilities vs. task requirements

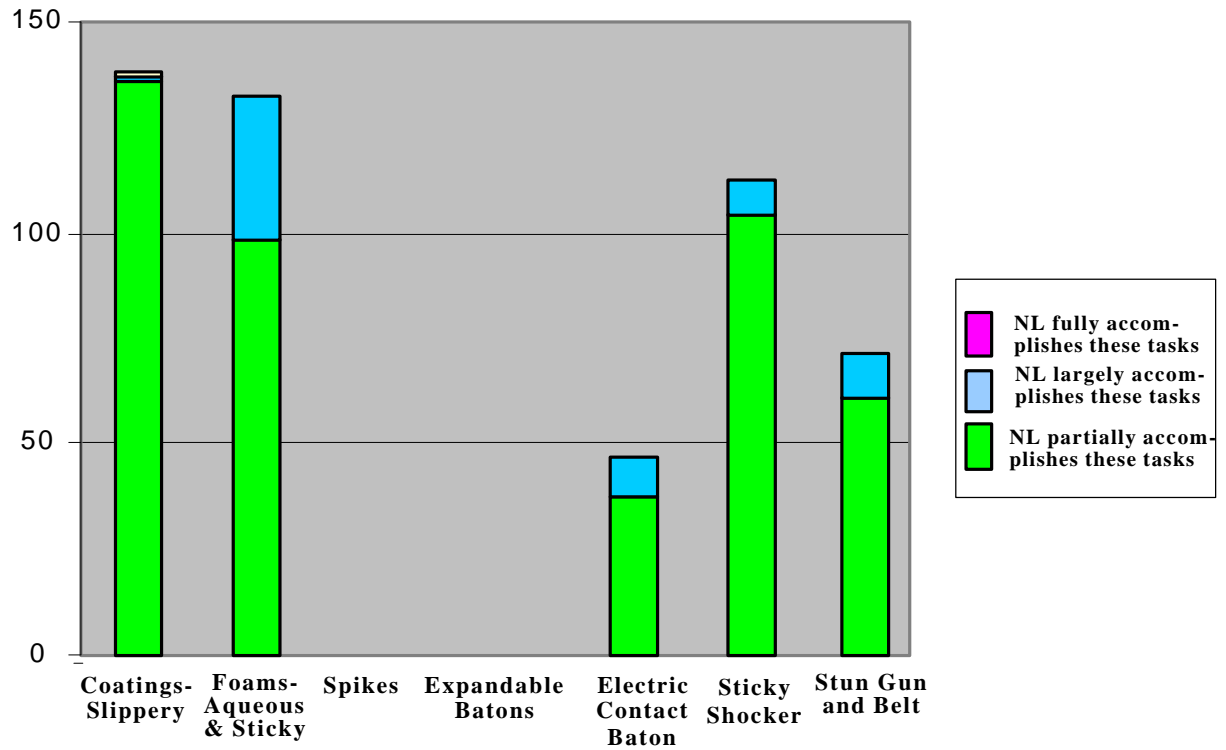


All of the chemical technologies offer considerable potential to at least partially accomplish Joint and Service tasks. It should be noted this assessment is purely in terms of technologies' capabilities and task requirements. It does not factor in possible operational constraints or employment restrictions from the Chemical Weapons Convention.

Markers, obscurants, and reactants (combustion alteration agents, chemical compounds, and embrittlers) are particularly noteworthy. Each of these technologies supports tasks where non-lethals offer significant advantages relative to lethals or where there are unique opportunities. Markers can be used to create or enhance a target's signature to support ISR or future targetting. Obscurants can support deception. And reactants offer potential advantages in counter-mobility and area denial if their effects are reversible. Reactants may also offer significant advantages in degrading WMD facilities while reducing the risk of an NBC release in comparison with the use of lethals.

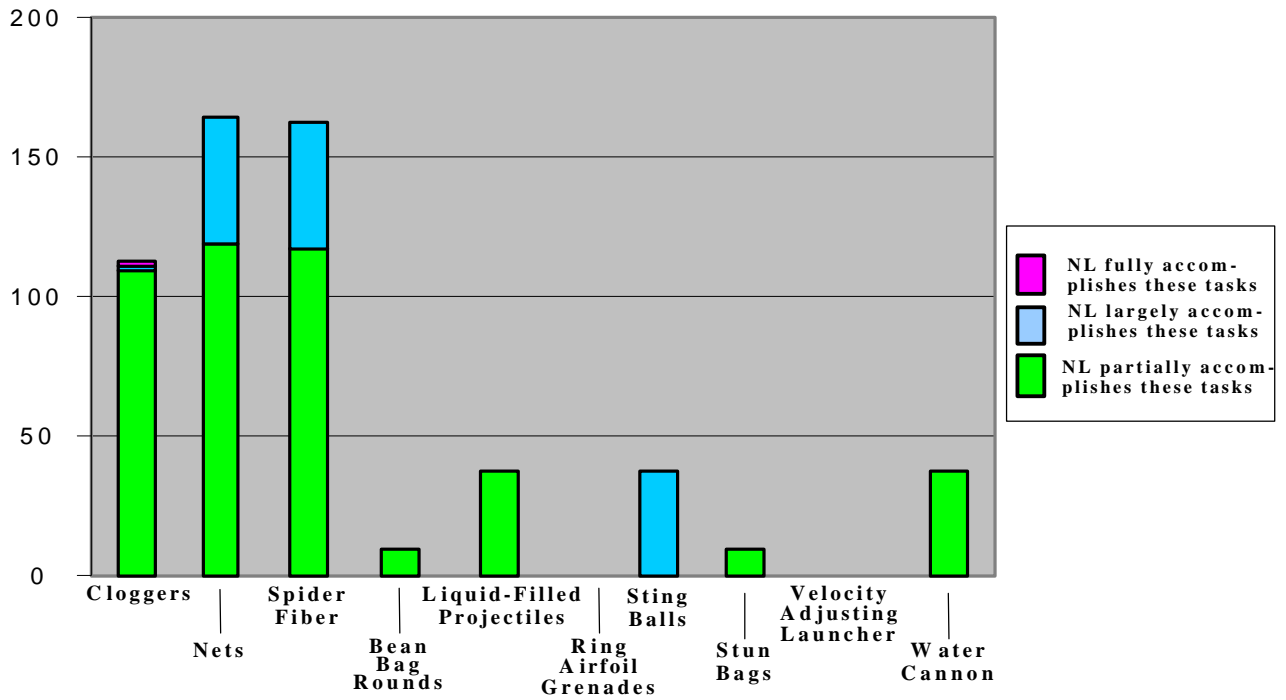
Figure 12 presents the same kind of results for some of the mechanical—barrier and baton—technologies as well as for the electricals. Figure 13 continues the presentation of results for the other mechanical technologies—the entanglements and projectiles.

Figure 12. Mechanical technologies—Potential capabilities vs. task requirements



The mechanical technologies assessed as offering the ability to support the most tasks are the barrier technologies (slippery coatings as well as aqueous and sticky foams) and the entanglements (cloggers, nets, and spider fiber) shown in Figure 13.

Figure 13. Mechanical technologies (continued)—Potential capabilities vs. task requirements



Entanglements support one of the areas where non-lethals represent a significant opportunity, as they could help provide counter-mobility and area denial with reversible effects, thereby preserving friendly forces' access. So also do barrier foams, which may facilitate breaching operations.

Figure 14. Optical technologies—Potential capabilities vs. task requirements

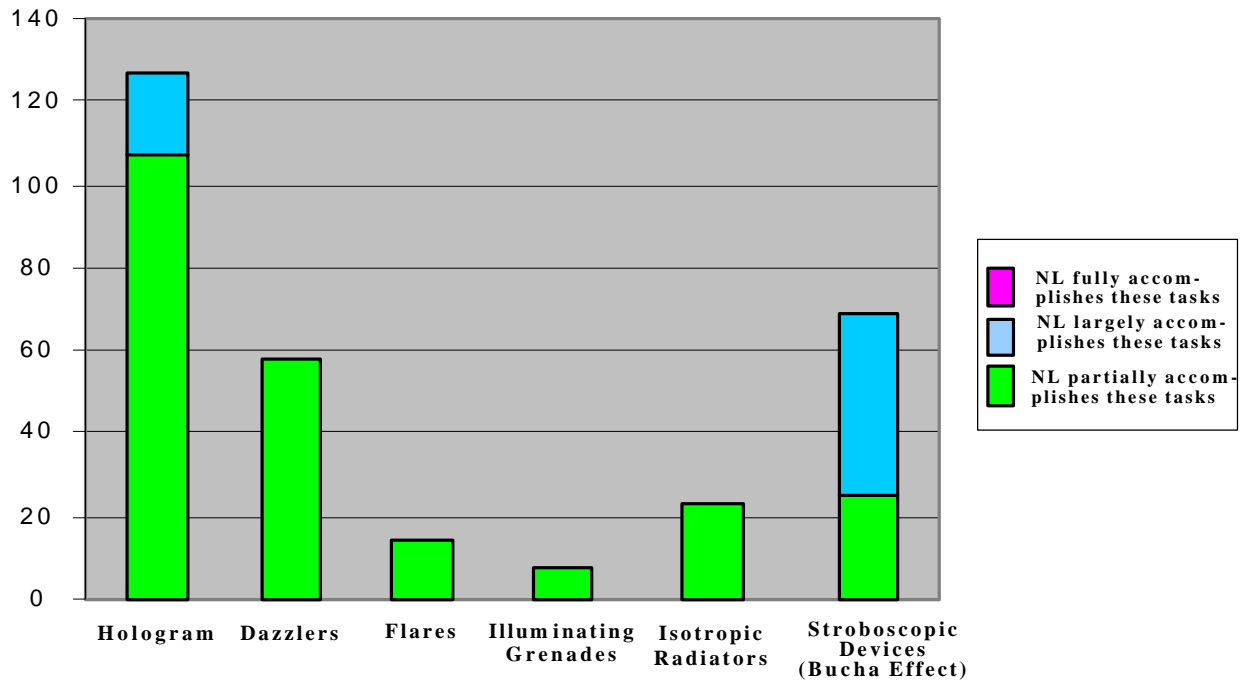
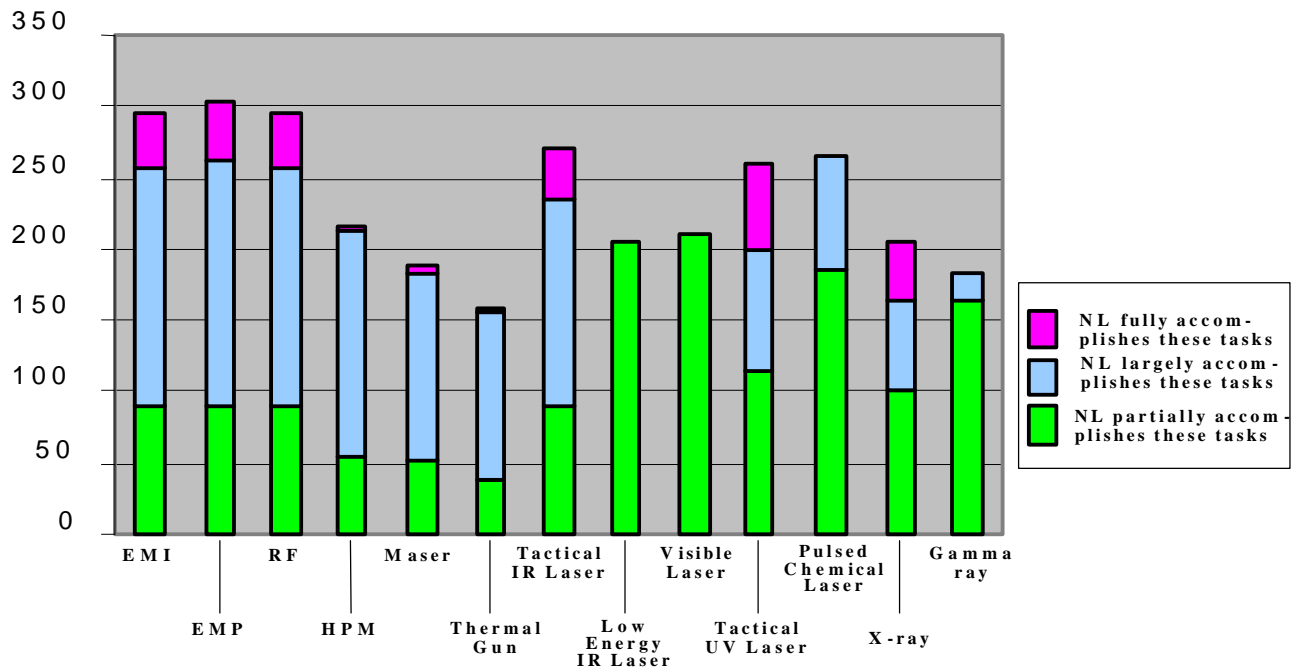


Figure 14 presents results for optical technologies. Optical technologies offer opportunities to support deception efforts, another of the areas where non-lethals offer advantages relative to lethal systems.

Of the optical technologies, holograms support accomplishment of the most tasks, followed by stroboscopic devices and dazzlers.

The final figure, Figure 15, addresses electromagnetic technologies. Of the six major categories of non-lethals—acoustic, biotechnical, chemical, mechanical, optical, and electromagnetic—electromagnetic appear to offer the potential to accomplish the greatest number of tasks.

Figure 15. Electromagnetic technologies—Potential capabilities vs. task requirements



Electromagnetic technologies may also offer the ability to degrade WMD facilities while reducing the risk of an NBC release.

Of the various types of technologies, the radio weapons (electromagnetic interference, non-nuclear electromagnetic pulse, and radio frequency weapons) support accomplishment of the greatest number of tasks, followed closely by tactical lasers.

Conclusions

In addressing the fundamental question: can non-lethals contribute to future military operations, the answer is **Yes**.

With respect to where and how they can contribute:

- Non-lethals apply across the hierarchy of tasks—strategic, operational, and tactical levels
- Non-lethals have major applications not just for Force Protection but also for Movement/Maneuver and Employing Forces/Fires, with fewer applications for ISR and C2.

- Non-lethals can not only complement lethals but also, for some tasks, offer advantages or unique contributions. This is true across the spectrum of threats and crises including MTW and higher, although it is true for an increasing number of tasks at the lower end of the spectrum.

Directions worth pursuing

High payoff areas where non-lethals provide important advantages relative to lethals or represent unique contributions include:

- Creation or enhancement of a target's signature
- Counter-mobility and area denial advantages stemming from reversibility of effects
- Degrading WMD productions and delivery systems while reducing risks of NBC release
- Deception
- Breaching
- Capture individuals for Intel purposes
- Protect forces and facilities

In terms of examining different types of non-lethal technologies, electromagnetic systems support the accomplishment of more tasks than other technologies. They may also contribute to degrading WMD facilities while reducing risk of an NBC release. Other technologies that support the accomplishment of a considerable number of tasks tied to areas of advantage or unique opportunity include markers/taggants and reactants.

Recommendations/Conclusions

The study's approach and results can be applied to support:

- POM initiatives—The approach provides a way to trace assumptions, demonstrate where and how non-lethals can contribute, and show the value of contributions in all types of military operations.
- Technology tradeoff decisions—The approach allows for direct comparisons of different non-lethal technologies in terms of their respective abilities to accomplish tasks, and it places these tasks within an operational context.

Initiate a Joint Mission Area Analysis (JMAA):

- This would represent an important next step for the Joint Non-Lethal Weapons Program. A JMAA would provide an opportunity to apply the study's approach with inputs from CINC representatives. A key output would be a consensus on Joint mission needs.

- This study has provided all of the groundwork for a JMAA. Not only has it developed an approach and results a JMAA can build from but also much of the analysis needed to complete the JMAA.
- Revisit the six non-lethal functional areas: Some of the opportunities highlighted in the table do not fall naturally into any of the six functional areas. A framework is needed that encompasses all key opportunities.

The Annexes and Appendices include more detailed information on the study group's "strategy-to-task-to-technology" analysis in the Joint Vision for Non-Lethals: Meeting the Demands of Future Military Operations. Annex E, which is a document search listing all the non-lethal mission needs statements and operational requirements documents, will be published at a later date.

Annexes

Annex A: Analysis of Alternative Futures and Their Security Implications

Annex B: Operational Context

Annex C: Military Tasks

Annex D: Non-Lethal Technologies

Annex E: Document Search/Review (To be published at a later date)

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Annex A—Analysis of Alternative Futures and Their Security Implications

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Introduction

Objective and origins of this annex report

This research memorandum details one analytic effort within the larger Center for Naval Analyses (CNA) study project concerning the future development of non-lethals (NL) within the context of a joint military doctrine concerning their employment.¹ This particular effort centers around the generation of “alternative global futures” and “future global security environments” through the use of a variety of analytic tools that were originally employed by CNA analyst Thomas P.M. Barnett in the initial 1998 iteration of CNA’s ongoing research for the Joint Non-Lethal Weapons Directorate.² This research memorandum should be viewed as an expanded and updated version of Barnett’s 1998 original.

Although the tools employed and the nature of their use reflects the study team’s particular approach to scenario-building, our overall methodology can be viewed as falling roughly within the parameters of the so-called Royal Dutch/Shell strategic planning methodology, as outlined by two of

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1. See also Nelson, John, et al., *Joint Vision for Non-Lethals: Meeting Demands of Future Military Operations*, CNA Research Memorandum 99-125. (Alexandria VA: Center for Naval Analyses, September 1999)
 2. Kenny, Henry J., Nelson, John J., Foley, Butch, and Barnett, Thomas P.M., *The U.S. Marine Corps and Non-Lethal Weapons in the 21st Century: Summary Report*, Quick-Response Report 98-8 (Alexandria VA: Center for Naval Analyses, September 1998); Barnett, Thomas P.M., and Nelson, John J., *The U.S. Marine Corps and Non-Lethal Weapons in the 21st Century: Annex A—Alternative Global and Regional Futures*, Quick-Response Report 98-9 (Alexandria VA: Center for Naval Analyses, September 1998); Barnett, Thomas P.M., *The U.S. Marine Corps and Non-Lethal Weapons in the 21st Century: Annex B—Briefing Slides*, Quick-Response Report 98-10 (Alexandria VA: Center for Naval Analyses, September 1998).

its more well-known practitioners, Pierre Wack and Peter Schwartz.³ In this manner, the scenario-building methodology employed here can be viewed as proceeding in a “top down” manner.

Attached bibliography

We offer the extensive bibliography at the end of this research memorandum in lieu of a more traditional, heavily annotated text in part to save the reader from the distraction of so many footnotes, but also because it reflects our team’s approach to scenario building, i.e., we seek not to provide the most accurate and/or academically-validated set of *predictions*, but a scenario-based analytical product that stretches the minds of readers while emphasizing the transparency—or “traceability”—of the methodology. In short, we don’t pretend that this research memorandum is a statistically fine-tuned survey of global trends, nor a tool for predicting the future, but rather a thought-provoking approach to thinking systematically about the future and the broad range of elements that frame its potential pathways. As such, we view the presented source material less as “proof” than as “hints” as to how the future of the world may unfold.

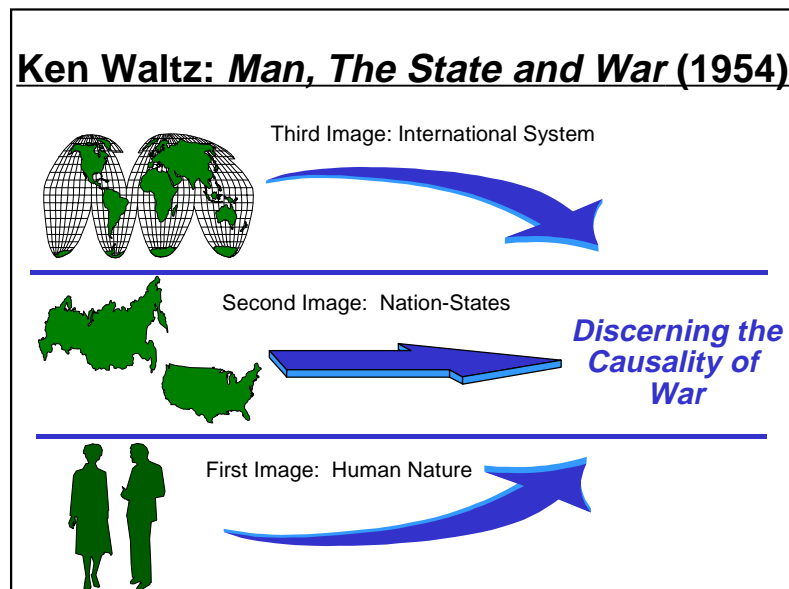
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3. Pierre Wack, “Scenarios: Uncharted Waters Ahead,” *Harvard Business Review*, September/October 1985, pp. 73-89; Wack, “Scenarios: Shooting the Rapids,” *Harvard Business Review*, November/December 1985, pp. 139-150; and Peter Schwartz, *The Art of the Long View: Paths to Strategic Insight For Yourself and Your Company* (New York: Currency Doubleday, 1991).

Six building blocks for scenario building

(1) Kenneth Waltz's "Three Images"

In 1954, Kenneth Waltz wrote his seminal work on the origins of war entitled, *Man, The State and War*.⁴ In this book, Waltz presented an approach to thinking about a large, indeterminate question of international relations (here, the causes of war between states). Waltz's approach to this eternal question was simply to "view" the matter from three separate perspectives, or, as he called them, "images" (see Figure 1 below):

Figure 1. Kenneth Waltz's three images



4. Kenneth Waltz, *Man, The State and War* (New York: Columbia University Press, 1954).

- The first image, or “bottom up” perspective, is that of humanity itself, or better stated, *human nature*. In other words, the question he posed was, is it the essential nature of humanity to engage in violence?
- The second image, or “straight on” perspective, involves the nation-states themselves. In other words, do certain types of states instigate wars while others do not?
- The third image, or “top down” perspective, involves the all-encompassing international system within which these wars between states occur. In other words, does the current structure (however defined, but typically described as one lacking an authoritative enforcer of international rules against warfare) simply allow or even encourage conflict among states?

In essence, Waltz utilized these three perspectives to test, or poke holes in conventional wisdom concerning the presumed complicity of man, states, and the international system in fomenting war. We will employ Waltz’s analytical framework as a key building block in discerning the future of interstate relations in the post-Cold War era, and, in doing so, wish to make the following key points about the current state of international affairs:

- Thinking of the sum of human interactions as occurring across these three levels, we note that militaries are historically (i.e, since the 17th Century) located at the level of the nation-state. This is nothing more than the “Willie Sutton effect,” or the reality that it is at the level of the nation-state that funds are aggregated for the provision of general defense.
- However, while militaries are essentially creatures of the nation-state level, we note that in the current era most of the world’s power and competition reside at the systemic level (e.g, rise of the global economy), whereas most of the world’s violence and “threats” exist sub-nationally, or on the level of individuals (e.g., terrorist groups, narcotic traffickers, mafia, ethnic conflicts).
- Thus we live in an era in which the military must broaden its global vision to include perspectives both “above” and “below” the level of the nation-state, lest they find themselves concentrating their future planning on an ever decreasing number of “rogues.”

(2) Thomas Friedman’s “6-D vision” of globalization

Continuing the theme that the military must broaden its vision of potential global futures, we note the lamentable tendency of political-military thinkers to view all global events and trends through the narrow prism of their potential downstream impact on international security. Instead of treating security as one of several threads that make up the weave of global futures, too many pol-mil experts view it as the dominate theme of human advance (as opposed to economics, science and technology, culture, and so on). Clearly, it’s too narrow to define human history’s long march as falling into one of two categories: war and peace. With the last real head-to-head shooting war between great powers (U.S. and Japan) having ended more than 50 years ago, political-military thinking requires a more comprehensive approach to gauging global change and trends.

Our response to this tendency to view everything through the security lens is to advance the following hypothesis: never in the history of humanity has a smaller percentage of the global population spent a smaller proportion of day-to-day life preparing for and engaging in acts of collective violence. Conversely, never in history has a larger percentage of the global population found itself pursuing its ambitions without the use of organized violence. And yet, we see time and time again the tendency of the military to define visions of global futures almost solely along the security dimension (e.g., “terrorists world,” “rogue states world,” “WMD proliferators world,” “failed states world”), as though capturing this thin slice of the totality of global interactions amounts to a comprehensive vision of future trends. Granting that the military needs to focus on worst-case scenarios, we believe it is also important to realistically examine the total environment in which the military may be expected to operate, especially those non-worst cases that invariably unfold as the more likely scenarios.

So rather than generate alternative global futures from the narrow lens of the security dimension, we propose to employ six separate global lenses:

- Economics
- Politics
- Technology (focusing on information technology)
- Culture

- The environment
- Security.

The six column categories capture what Thomas Friedman, in his 1999 book *The Lexus and the Olive Tree*, describes as the six essential “dimensions” of thinking that any serious analyst must employ when trying to understand the all-encompassing theme of globalization.⁵ It is by examining global drivers through these six lenses that we achieve the breadth of vision needed to capture the full range of key trends and uncertainties that will shape the planet’s development over the coming years.

(3) Four points on the global compass and resulting pathways

Rather than define four disparate global futures, we chose to offer four possible global scenario pathways through which various regions of the world (discussed next) may progress in the coming years. Approaching these pathways less as endpoints than headings, we employ the analogy of points on a compass:

- Our “northern point” moves the world further in the direction of Waltz’s third image, or the international system. When we speak of movement “up” this axis, we’re describing trends that favor global integration.
- Our “southern point” moves the world further in the direction of Waltz’s first image, or the level of the individual. When we speak of movement “down” this axis, we’re describing trends that favor fragmentation and localization.
- Our horizontal axis speaks to Waltz’s second image, or the level of the nation-state. Movement to the right, or east, implies greater flexibility on the part of national governments, thus enabling more freedom of human interactions across the boundaries of states. Movement to the left, or west, implies greater rigidity or rule-making on the part of national governments, resulting in more control being

5. Friedman, Thomas L., *The Lexus and the Olive Tree: Understanding Globalization* (New York: Farrar Straus & Giroux, 1999).

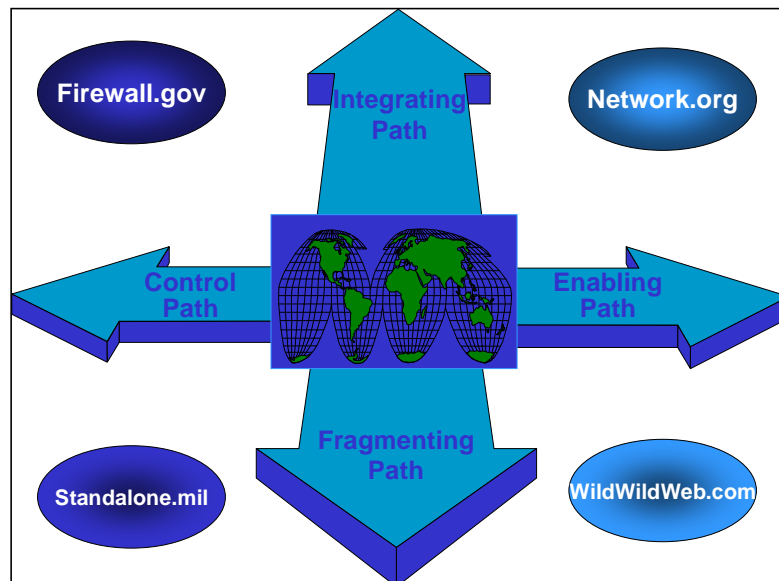
exercised by state governments over human interactions both within and across national boundaries.

These four compass points yield four quadrants, which in turn define our four global scenario pathways. In naming these four pathways, we employ the information technology (IT) paradigm currently dominate in computing. By doing so, we seek not to limit the reader's imagination to solely those aspects of global futures stemming from either computing or information technology in general. Rather, we hope our employment of the IT paradigm will provide the reader a "good grip" on the wider implications of the pathways presented by relating them to issues he or she faces in day-to-day interactions with IT in his or her professional and personal lives.

Figure 2 below presents the four global pathways in schematic form. To reiterate, the four scenario pathways are determined by the answers to two fundamental questions about global change:

- Is it *integrating* or *fragmenting*?
- Does it encourage *more government* or *better government*?

Figure 2. Future global pathways



***Network.org* pathway**

The *Integrating/Enabling* development is designated the *Network.org* pathway, suggesting the vision of a networked planet defined by protocols of interaction (more “push” than “pull”). The dominant image here is one of states moving closer together in a way that enables greater amounts of human interactions across borders and around the globe in general. The historical period that most closely resembles this scenario is the boom times of late 19th Century, when the world began its first great phase of globalization and the telegraph was heralded in much the same way as the Internet is today. In security terms, this is a very “preventive” world, full of transparency among the system’s great military powers that eventually leads to condominium (i.e., the increasing “inter-locking” of military capabilities). The dominant prism through which countries deal with the outside world is the international organization (.org), so the *dominant institutional trend for the U.S. Department of Defense (DoD) would be ever greater cooperation with and subordination to international intelligence and surveillance agencies.*

***WildWildWeb.com* pathway**

The *Fragmenting/Enabling* development is designated the *WildWildWeb.com* pathway, suggesting the vision of loosely linked planet defined by nonlinear and asynchronous forms of interaction (more “pull” than “push”). The dominant image here is one of states dissolving into one another as the frequency and gross volume of human interactions across borders and around the globe race beyond their capacity for regulation. The best historical analogy here is probably the Roaring Twenties. In security terms, this is a more raucous world, where self-protection is a far more individualized matter—both at the nation-state level and below. The dominant prism through which countries deal with the outside world is the multinational corporation (.com), so the *dominant institutional trend for the DoD would be ever greater competition with private surveillance and intelligence agencies, along with greater cooperation with and subordination to private corporations in general.*

***Firewall.gov* pathway**

The *Integrating/Controlling* development is designated the *Firewall.gov* pathway, suggesting the vision of a planet divided into large private

networks whose boundaries are demarcated by security controls that seek to regulate residents' interactions with the outside world. The dominant image here is one of like-minded states erecting techno-cultural "moats" along their collective boundaries in an attempt to preserve their distinctiveness within an increasingly homogenized world. Here we look for the "next ideology," whatever that may be (although we're betting on some mix of religion, ethnicity, and a rejection of "Western" technology). The best historical analogy here is probably the early period of the Cold War era. In security terms, we speak of flash points along the borders between blocs, but little uncertainty within them. The dominant prism through which countries deal with the outside world are governments (.gov), so the *dominant institutional trend for the DoD would be ever greater cooperation with and influence over governments within America's immediate sphere of influence (Western Hemisphere), but a reduction of cooperation with governments outside of the "firewall."*

***Standalone.mil* pathway**

The *Fragmenting/Controlling* development is designated the *Standalone.mil* pathway, suggesting the vision of a planet boulderized into numerous small units (either states as we know them today or smaller) whose boundaries are strictly regulated by security controls that seek to provide an "air gap" between an "inside world" that seeks a "decontaminating distance" from the chaotic "outside world." Here, technological advance neither integrates nor provides something against which to rally. It simply atomizing the "global village" into a universe of "small towns" (i.e., the return of the city-state in which economic and social cohesion is limited to areas surrounding a major global economic hub, such as a Moscow, a Paris, a New York, or a Tokyo). The best historical analogy here is probably the Great Depression of the 1930s. In security terms, we speak of a "short horizon," i.e., these "small towns" worry about themselves and maybe the next town or two over, but that's it. The dominant prism through which countries deal with the outside world is the military (.mil), so the *dominant institutional trend for the DoD would be ever greater distance from the civilian world and a strict limitation in COTS dependency.*

(4) Five easy pieces, or “worlds-within-worlds”

This building block involves dividing up the world into five major groupings, or “world-within-worlds.” The logic employed here says that the employment of U.S. military power overseas—be it lethal or non-lethal—will vary significantly depending on which of the five “worlds” is involved. This is true because each of the five “worlds” represents a different set of U.S. national security interests, as well as a dramatically different security environment in terms of how each region has evolved or progressed over the course of the 20th Century (i.e., some being more “trapped in the past” than others). These five “worlds-within-worlds” are depicted in Figure 3 below.

Figure 3. Five worlds-within-worlds



WestWorld

WestWorld is essentially the Western Hemisphere. Here the dominant player is obviously the United States, as this entire region is considered to

fall under its presumed benevolent hegemony, dating back to the enunciation of the Monroe Doctrine. A key determining factor for *WestWorld*'s future will be the relatively rapid Latinization of the U.S. (Hispanics go from about 6 percent of the population in 1980 to about 15 percent by 2010), or more accurately, the blending of Latin American and European cultures through the combined effects of large Hispanic immigration, high birth rates among the Latino population (they fuel a significant portion of the current, so-called Millennium Boom), and the relatively high rates of Hispanic-Caucasian intermarriage (roughly a third for native-born Hispanics marry whites).⁶ This browning of America will mark substantial social change unlike any other wave of immigration in scope and magnitude (i.e., not merely a melting pot of predominantly European bloodlines, but a genuine blending of significantly different cultures—almost a back-to-the-future mestizosification of American culture. This predetermined element will seriously influence the employment of U.S. military power in *WestWorld* by making it largely an internal family affair, i.e., no longer white America acting against our brown neighbors but beige America interacting with brown Latin America. Make no mistake, this is not an argument that says the “melting pot won’t work this time—just the opposite. *They* are not just *coming*, *we* are *becoming*.

OldWorld

OldWorld is essentially the region of Europe, to include Russia to the Urals. Here the dominant player will be the European Union, as the countries of the region strive to move themselves forever past the costly inter-state wars of previous generations. A key determining factor for *OldWorld*'s future will be the long and happy marriage of the EU with NATO, and how that maintains the transatlantic relationship with the U.S., with the number one rival being the notion of a European Self-Defense Entity that would not include the U.S. Other key factors will be the degree to which Germany anchors itself within a united Europe and Russia finds itself in an insider's vice outsider's situation. The rapid aging of the population in most of these countries, coupled with rising concerns about too much immigration, will

6. Steven A. Holmes, “Blacks Crunch the Numbers: Figuring Out Hispanic Influence,” *The New York Times* 16 August 1998, p. WK3; and Michael Lind, “The Beige and the Black,” *The New York Times Magazine*, 16 August 1998, p. 38.

also exert significant influence over the course of future regional events and trends. The confluence of multiple great-power dyad relationships in this region, coupled with the tremendous evolution of consensus rule, makes any application of U.S. military power a far more complicated and regulated affair than in any other region of the globe.

CareWorld

CareWorld is essentially sub-Saharan Africa. Here there really is no dominant player of global significance, although South Africa cuts a wide swatch simply in terms of its concentrated economic power relative to the rest of the countries. The key determining factor for *CareWorld*'s future is the degree to which it can transform itself from an object of global empathy to that of serious economic partnership (i.e., moving from "victim" to "customer"). The future course of the HIV/AIDS pandemic within the region (e.g., estimates of 1-in-4 adults being HIV-positive, with life expectancies of newborns dropping by half over the coming generation)⁷ will be a significant element of uncertainty, for its capacity to overwhelm state capacities with its care requirements is not yet fully understood. Likewise, the capacity of ethnic violence to incapacitate local political authority (creating "carrion countries" like present-day Congo) looms large. The application of U.S. military power in this region is not predicated on any significant national security concerns, which should suggest a certain freedom of action. But since U.S. motives are largely limited to altruism (i.e., our trade relations remain relatively marginal as a whole), the American public's patience and/or attention span with the region is relatively limited.

OilWorld

OilWorld is essentially the combined regions of North Africa, the Middle East, and the Caspian Basin. Here the dominant players are Israel, Iran, Egypt, and Turkey, with the United States the only serious contender for the position of extra-regional "referee." The key determining factors for *OilWorld*'s future are two-fold:

7. The estimate from international health organization is cited by Myron Essex in his article, "The New AIDS Epidemic: It's Raging Across Southern Africa Now, And Is Spread Heterosexually," *Harvard Magazine*, September-October 1999, p. 35.

- The degree to which the region can shake off its historical record as economic “underperformer” by solving a host of inter-state and intra-state security issues (not to mention the distinct lack of democracy, due in large part to the reality that most of the oil, and thus, the wealth, lies in state, or *family-state* hands)
- The degree to which the region’s “co-dependency” with the global economy (i.e., we need their oil, they are trapped in largely unidimensional economies) can be diversified in an evolutionary, or non-disruptive fashion.

Naturally, these two elements are highly interrelated. Also key uncertainties in this region include the supply of fresh water and the existence of serious youth “bulges.” The employment of U.S. military power in this region is likewise distinguished in a double fashion: first, by the concentration of the world’s known oil reserves; and second, by the region’s largely Muslim population and the contentious issues surrounding Arab-Israeli relations.

S/fearWorld

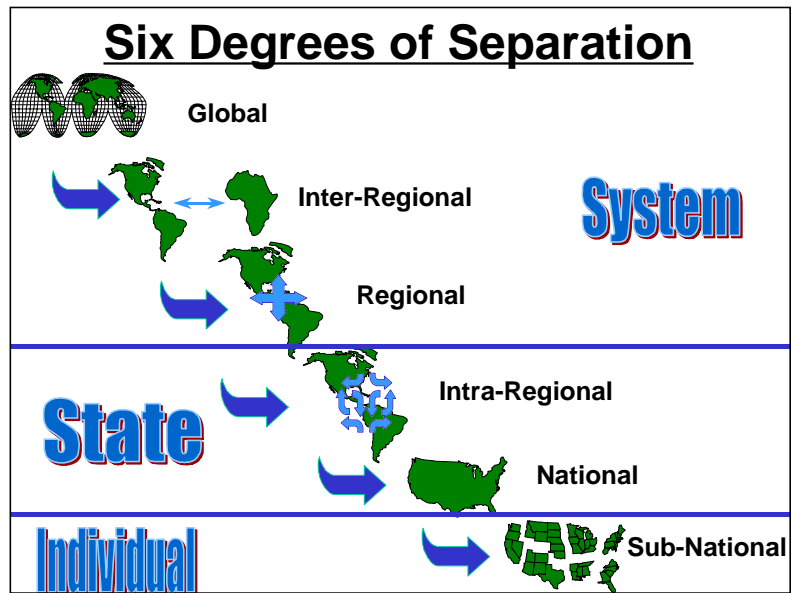
S/fearWorld is essentially encompasses the rest of Asia and the Pacific region. Here six weighty players (China, Japan, India, Russia, Indonesia, and Australia) vie for influence over the region’s major developments, with each of the six claiming significant *spheres* of influence (some waning more right now than others) that invariably overlap with one or more of the other powers, resulting in the currently tenuous, though fundamentally peaceful balance. Although the region as a whole has undergone tremendous economic advance in the past several decades, in terms of regional security, it remains largely trapped in the past due to political growth that has not occurred (i.e., too much central control). Unlike *OldWorld*, which has clearly processed itself past the evolutionary point where wars among great power are possible, the same cannot be said for *S/fearWorld*, where the major players still tend to view one another in balance-of-power terms, *fearing* the potential for seemingly rapid shifts in the “correlation of forces” among them. The application of U.S. military power here is greatly influenced by our self-proclaimed (and largely welcomed) role as regional “Leviathan.” Naturally, the biggest question mark for this region is the extent to which it can move beyond its current economic crisis and recast its financial structures in a way that facilitates the growth of domestic markets and their continued integration into a stable global economy.

(5) Six degrees of separation

This building block is nothing more than a more differentiated version of Kenneth Waltz's "three images," i.e., an alternative "perspectives" framework that differentiates global developments with greater granularity. As such, it will be employed in that portion of the scenario development process that involves the individual 'worlds-within-worlds.' The six degrees of separation are as follows (see Figure 4 below):

- The global level—already touched upon in the "global compass points" section; the equivalent to Waltz's third image
- The inter-regional level—referring to relations between the world's major regions, or here, the "worlds-within-worlds"
- The regional level—referring to the key internal issues faced by the region as a whole
- The intra-regional level—referring to relations among the region's major "hubs" (which may or may not be nation-states per se, but rather economic hubs, such as Southern California or any of China's "rim" provinces).
- The nation-state level—referring to the key issues faced by national governments within a particular region; the equivalent to Waltz's second image
- The sub-national level—referring to relation among individuals both within and across states; the equivalent to Waltz's first image.

Figure 4. Six levels of analysis arrayed across Waltz's three images



(6) Two-by-two matrices for framing key issues

This final building block consists of a rather simplistic methodology often employed in game theory in the academic field of international relations. Known most prominently by its association with the Prisoner's Dilemma scenario, the two-by-two matrix depicted in Figure 5 below simply posits two variables (here, questions relating to a single, overarching topic such as global currency markets or the AIDS epidemic) that are delimited to only two possible outcomes (one more positive, the other, more negative). By systematically grouping the positive outcomes in the upper left-hand quadrant and the negatives in the lower, right-hand quadrant, the matrix combines the two variables into four distinct outcome pairings (positive-positive, positive-negative, negative-positive, and negative-negative). This methodology will be used to organize the potential outcomes for all the key uncertainties examined in the scenario development methodology according the four “points on the global compass” introduced earlier.

Figure 5. Generic representation of two-by-two matrix

<u>Two Questions, Two Answers, Four Boxes</u>			
		Second Big Question	
		YES	NO
First Big Question	YES	YES, YES	NO, YES
	NO	YES, NO	NO, NO

Developing the global mega-scenarios: the ten-step program

Step I: Waltz's "three images" + Friedman's "6-D vision" = Global Scenario Grid

Structure of the Global Scenario Grid

The rationale behind the Global Scenario Grid (see Figure 6 below) is the notion that, when military organizations think about alternative futures, it's important that they take both the widest and deepest angle view possible. To view all possible drivers of global change through the exceedingly narrow prism of military security is to miss out on most of life as we know it. Moreover, it tends to trap oneself into interpreting security threats largely, if not exclusively, in terms of state-on-state threats, within which it is believed possible to locate such animating characteristics as motivations, ideologies, and strategies.

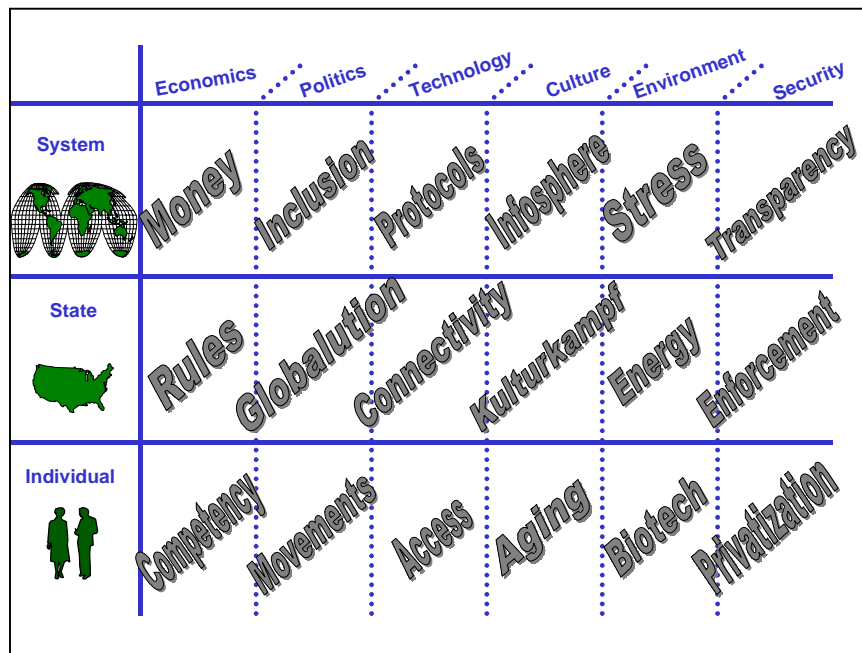
Unfortunately, little of life, not to mention global change, fits neatly within the nation-state box, and surprisingly little of it comes with clearly identified motivations or strategies. On the contrary, most of what drives global change tends to be the cross-cutting issues, the chronic conditions, and the broad trends lines not associated with any clear ideology, leadership, or national identity. And again, to capture these in a systematic fashion, one needs the big picture approach, which is what the Global Scenario Grid is all about.

The depth of the grid's vision is expressed by the decision to categorize global change drivers not only in terms of how they relate to the nation-state environment, but likewise to both the supranational (i.e., international system) and subnational (i.e., individual citizen) environments. As such, the three rows of the grid correspond to Waltz's "three images."

The breadth of the grid's vision is expressed by the employment of Friedman's "6-D vision" of globalization, meaning we approach global change as a process encompassing far more than merely variations to the international security environment.

The first step in developing the global mega-scenarios involves creating an overarching matrix that combines Waltz's three analytic levels with Friedman's six broad categories of globalization (see Figure 6 below). This three-by-six matrix yields 18 separate cells, or themes of global change. Our goal in selecting each theme was to capture that element of global change and/or uncertainty that is most indicative or encompassing for the nexus in question.

Figure 6. The Global Scenario Grid themes



Obviously, these are not the only themes of global change that one can come up with in a drill such as this. Rather, our selections represent one way of categorizing the more influential driver by level of depth (Waltz's "three images") and breadth (Friedman's "6-D vision"). In short, these themes

represent our picks for the top 18 subjects that collectively pack the greatest explanatory “wallop” regarding potential future paths for the world as a whole.

Global Scenario Grid themes in detail

Economics

- *System Nexus = Money*, or the movement of money on international currency markets
- *State Nexus = Rules*, or the spread of Western-style economic principles to include basic accounting practices, regulation of banking and finance, and the general promotion of free trade
- *Individual Nexus = Competency*, or the mastering of new skill sets associated with an increasingly interconnected and interdependent global, information technology-driven New Economy.

Politics

- *System Nexus = Inclusion*, or the emergence of new great powers (e.g., China, Russia, Brazil, India, Indonesia) and the question of their acceptance into the “councils of power” by the established great powers
- *State Nexus = Globalution*, or Thomas Friedman’s concept of “revolution from beyond,” by which the international investing community encourages or even forces political and economic reform by “voting” on a state’s economic performance on a daily (even hourly) basis⁸
- *Individual Nexus = Movements*, or the evolution of political action groups committed to effecting political change within and across state governments, and the degree to which they employ violence as a means of achieving those ends

8. Friedman, *Lexus and Olive Tree*, passim.

Technology

- *System Nexus = Protocols*, or the movement of data throughout the planet as facilitated by international agreements on IT standards
- *State Nexus = Connectivity*, or the degree to which individual countries are “wired up” and thus participating in the Information Revolution
- *Individual Nexus = Access*, or the degree to which advances in IT are made accessible to the average individual around the world.

Culture

- *System Nexus = Infosphere*, or Michael Vlahos’s concept about the degree to which the emerging global information infrastructure (e.g., Internet, WWW) encourages human “migration” to a new social, political, and economic virtual environment⁹
- *State Nexus = Kulturkampf*, or the degree to which the process of Westernization is met with local resistance and/or rejection by cultures around the world in the manner suggested by Samuel Huntington¹⁰
- *Individual Nexus = Aging*, or the nature of social change forced upon industrial nations by the aging of their populations

Environment

- *System Nexus = Stress*, or the degree of global climate variation and/or permanent change (e.g., melting of glaciers and the polar ice cap) is directly caused (changing mix of planet’s atmosphere) or indirectly exacerbated (El Nino) by global warming and humanity’s overall impact on the planet (e.g., pollution, depletion of resources)
- *State Nexus = Energy*, or the co-evolution of global oil supplies and global oil demand, including the onset of alternative energies

9. See Michael Vlahos, "Entering the Infosphere," *Journal of International Affairs*, Spring 1998, pp. 497-525.

10. See Samuel P. Huntington, *The Clash of Civilizations and the Remaking of World Order* (New York: Simon & Schuster, 1996).

- *Individual Nexus = Biotech*, or the onset and broad impact of the upcoming revolution in biogenetic engineering and/or commerce

Security

- *System Nexus = Transparency*, or the degree to which military great powers are open with one another concerning developments within, and the operation of, their military establishments
- *State Nexus = Enforcement*, or the degree to which states collectively enforce international norms against transgressing states
- *Individual Nexus = Privatization*, or the degree to which the concept of “national security” is recast in terms of personal safety against the acts of “criminals.”

Steps II and III: Developing 2-by-2 matrices for each global theme and matching matrix outcomes with global pathways

In this section we break down each theme of global change into a two-by-two matrix (see Figure 7 below) by asking the two most essential questions for uncovering the likely global pathways into which each theme may unfold over time. Next, we decide which global pathway corresponds to which matrix box. Finally, we designate and explain the importance of a single key indicator (spotlight) for the matrix’s development over time, and offer four corresponding fictional newspaper “headlines” to express how that indicator might find expression across each of the four matrix outcomes/global pathways.

Economics

System = *Money*

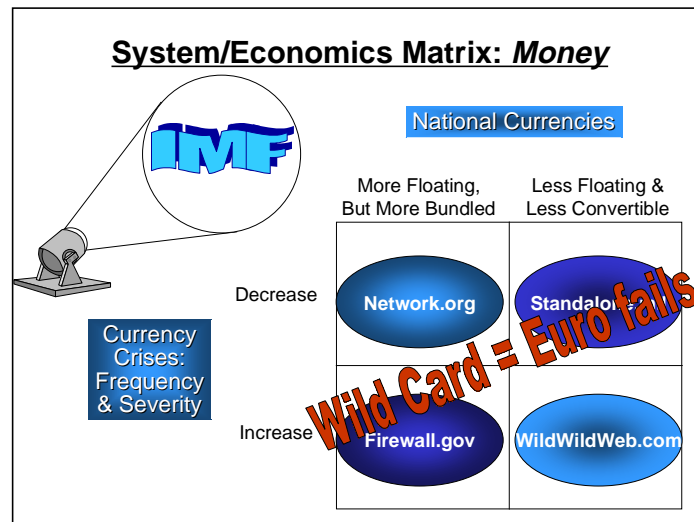
The key questions involve the frequency and severity of financial crises and the extent to which currencies become increasingly bundled together (e.g., Euro, dollarization). Wild card would be failure of the Euro and resulting disablement of the European Union, which would call into question the utility of the growing regionalization of commodities, the movement toward supranational currencies, and the promise of free trade zones—all key components of the emerging global economic rule set of the 1990s. Watch the IMF as a signpost (see scenario “headlines” detailed below by pathway).

- *Network.org* pathway = crises decrease in frequency and severity + more floating/bundled currencies
 - *Members Vote IMF Significant Expansion of Funds; Fund Declared ‘Lender of Last Resort’ For Future Crises (Vision Emerges of Fund as Cornerstone for ‘Global Central Bank’)*
- *WildWildWeb.com* pathway = crises increase in frequency and severity + less floating/bundled currencies
 - *Experts Declare IMF ‘Irrelevant’ As G-7 Powers Increasingly Let Markets Punish ‘Bad Economies’ (Some Officials Worry: Can Anyone Tame the International ‘Electronic Herd?’)*
- *Firewall.gov* pathway = crises increase in frequency and severity + more floating/bundled currencies
 - *[Country X] Declares It Will Forego Future IMF Loans; Cites ‘Poisonous Influence’ of West (New Strongman Leader: ‘American Bankers Won’t Dictate Our Future!’)*
- *Standalone.mil* pathway = crises decrease in frequency and severity + less floating/bundled currencies
 - *IMF Goes Belly Up! Starved of Member Funding and Overtaxed by Demand, Fund Ceases Talks With Poor Countries On Emergency Rescues (Fund President, Warning of Rising Protectionism Among Rich States, Declare ‘End of Era’).*

State = Rules

The key questions involve the impact of the international *Electronic Herd* in encouraging better accounting within states, and whether the next financial crisis causes affected states to open up more or close themselves off from the global economy. Wild card would be financial crisis centered in China and its resulting withdrawal from global economy. China sets a huge example for Emerging Economies (e.g., India, Indonesia, Russia, Poland) regarding the inevitability of movement toward market capitalism. Its retreat from that path (however slowly it moves along it) could easily set off a stampede toward economic nationalism among modernizing economic powers. Watch Foreign Direct Investment (FDI) as a signpost (see scenario “headlines” detailed below by pathway).

Figure 7. Example Global Theme matrix with spotlight



- *Network.org* pathway = *Herd* forces broad rule set + next financial crisis forces better accounting and more transparency
 - *New Rush Into Emerging Markets Signals Investor Faith in Post-Crisis Reforms; ‘Everyone’s Finally on the Same Accounting Page, Declares Soros (Bond Ratings Soar for Economies With Improved Banking Regulations)*
- *WildWildWeb.com* pathway = *Herd* encourages short-term capital controls + next financial crisis forces better accounting and more transparency
 - *Banks in Emerging Markets Clean Up Act, But Along With Better Books Come New Penalties for Early Withdrawals (Bad Bets Grow More Costly For Those Still Willing to Gamble)*
- *Firewall.gov* pathway = *Herd* forces broad rule set + next financial crisis encourages protectionism and less transparency
 - *Asian Values, Act II: Latest Financial Crisis Unites Region’s Economies in Resistance to US ‘Economic Bullying’ (Chinese Foreign Minister: ‘Our Scorecard Includes More Than Just Profit’)*

- *Standalone.mil* pathway = *Herd* encourages short-term capital controls + next financial crisis encourages protectionism and less transparency

— *Still Another Asian Economy Joins Financial Isolation Ward; Foreign Assets Frozen in Response to Currency Attacks (Market ‘Ebola’ Equivalent Means Strict Economic Quarantine).*

Individual = Competency

The key questions involve the role of IT Elites (transnational unifying force or secede from societies?) and IT Incompetents (make way in Market Economy or relegated to Survival Economy?). Wild card is new global labor movement based on IT proletariat (worker geeks) and it’s effect on New Economy. The emergence of an IT-Era labor movement would signal a socio-economic rift between Competents and Incompetents that had moved past the point of easy resolution or smooth compromise, raising the specter of social unrest and the rise of political ideologies designed to “smash the system.” Watch the Virtual Tigers as a signpost (see scenario “headlines” detailed below by pathway).

- *Network.org* pathway = Knowledge Elite becomes transnational unifying force + IT “incompetents” find multiple avenues into market economy

— *Emerging Labor Majority Marks Beginning of Post-Zionist Era in Israeli Politics; ‘Mideast Tiger’ Plans to Play on Global Economic Stage (Wadi Valley Seen as Engine of New Israeli Economy)*

- *WildWildWeb.com* pathway = Knowledge Elite increasingly “secedes” from larger society + IT “incompetents” find multiple avenues into market economy

— *Israel’s ‘Silicon Valley’ Generates High-Tech Secular Society Unto Itself; Growing Rift with Zionist Orthodoxy Viewed as ‘Cultural Civil War’ (Many Israelis Fear Country Splitting Into Two Distinct Futures)*

- *Firewall.gov* pathway = Knowledge Elite becomes transnational unifying force + IT “incompetents” increasingly limited to survival economy

— *Israel's Orthodox Renewal Seen as Rejection of Globalism and Wadi Valley-Style New Economy (Many Young Israelis Leaving for Freer and Greener Pastures Abroad)*

- *Standalone.mil* pathway = Knowledge Elite increasingly “secedes” from larger society + IT “incompetents” increasingly limited to survival economy

— *New Likud Government Vows Israel Will Regain Economic Self-Sufficiency; New Security Focus is Food and Water (Kibbutz Ethos Signals Back-to-the-Future Vision of Right Wing).*

Politics

System = *Inclusion*

The key questions involve the extent to which great powers seeks to include emerging powers in global “hallways of power” and extent to which emerging powers seek the acceptance of great powers. Wild card is emergence of “loser power” alliance, involving some combination of Russia, India, China, and rogue states. This would involve close to half of the world’s population, and would signal yet another attempt in history to firewall off a large portion of the global economy (last being Soviet Bloc). The bifurcation of the global security landscape would resurrect many aspects of the Cold War, however muted. Watch the expansion of the now G-8 as a signpost (see scenario “headlines” detailed below by pathway).

- *Network.org* pathway = Emerging Powers seek individual acceptance from Great Powers + Great Powers seek to empower and include them

— *Gee, It's Now a Sweet 16: Indonesia Joins G-15 As Newest Member (Ascension of World's Largest Islamic State Hailed as Watershed of New Globalized Era)*

- *WildWildWeb.com* pathway = Emerging Powers seek individual acceptance from Great Powers + Great Powers seek to restrain and reform them

— *Nose to the Glass Yet Again, China Waits for Acceptance From G-8 (Beijing Bristles as Notion That Poorer Russia Gets Preferred Status Due to Nuclear Weapons)*

- *Firewall.gov* pathway = Emerging Powers seek individual or collective autarchy from their system + Great Powers seek to restrain and reform them
 - *In Surprise Move, Russia Leaves G-8, Signs Comprehensive Trade Pact With China (Eurasian Free Trade Zone Will Target Indonesia, India, and Iran as Founding Members)*
- *Standalone.mil* pathway = Emerging Powers seek individual acceptance from Great Powers + Great Powers seek to empower and include them
 - *War Over, India Retools Trade Policy to Stress 'Freedom From West' (Conflict with Pakistan Proved 'Who Our Real Enemies Are,' Declares New BJP Prime Minister).*

State = Globalution

The key questions involve the extent to which such “revolutions from beyond” encourage positive political reform or withdrawals from the global economy and how much the U.S. national political “marketplace” supplants the United Nations as the forum for enunciating global political issues (via political campaign contributions and lobbying by foreign states seeking to win foreign policy favoritism from Washington). Wild card is *Electronic Herd* accidentally forcing some broad revolution or shift to authoritarianism in a large emerging economy such as Brazil, Russia, China, India, or Indonesia. Watch Russia as a signpost.

- *Network.org* pathway = “Revolution from Beyond” is positive learning experience for Emerging Economies + States work increasingly through U.N. for alternatives to U.S.-style international justice
 - *Japan's 'Generation 2000' Leaders Plot Ambitious Role for Newest Permanent U.N. Security Council Member (Tokyo Pledges Open Door to All Seeking Justice Without Military Conflict)*
- *WildWildWeb.com* pathway = “Revolution from Beyond” is positive learning experience for Emerging Economies + States increasingly “buy” U.S. favoritism via campaign contributions and lobbying efforts

- *Gazprom Wins Bigs in Caspian Oil Pipeline Agreement; Losers Cry Foul Over Russian Lobbying With White House (Moscow Counters, We've Just Learned to Play Your Game Well)*
- *Firewall.gov* pathway = “Revolution from Beyond” devolves into fear-threat spiral with West + States increasingly “buy” U.S. favoritism via campaign contributions and lobbying efforts
 - *China, Reeling From Currency Attacks, Cracks Down on Hong Kong (White House Takes No Action, Leading Critics to Decry ‘Sellout’ to Well-Heeled Chinese Lobby)*
- *Standalone.mil* pathway = “Revolution from Beyond” devolves into fear-threat spiral with West + States work increasingly through U.N. for alternatives to U.S.-style international justice
 - *U.S. Forced to Use Veto Yet Again In U.N. Security Council; Joint Russian-Chinese Resolution Condemning U.S. Mideast Intervention Narrowly Averted (Estranged Great Powers Declare ‘American Bullying Is Thing of the Past’)*

Individual = Movements

The key questions involve the evolution of political action groups (work within the law or engage in terrorism) and the emergence of the Netizen (stable virtual middle or land of the extremists). Wild card is *the next ideology*, which is probably some combination of anti-Americanism, anti-Westernism, anti-secularism and anti-technology. Rise of next ideology will signal resumption of historical conflict between competing views of the future and likelihood that inter-state conflict will not subside as predicted. Watch the emergence of terrorism and hacktivism as signposts (see scenario “headlines” detailed below by pathway).

- *Network.org* pathway = Domestic/international political action groups multiply due to complexity of issues and grow in influence + Netizens prove to be “virtual middle” that’s connected and confident
 - *Hill’s E-Polling Seen as Growing Influence on How Congress Votes; White House Tracks With Equal Interest (Internet Seen by Both Parties as ‘Virtual Conference’ on Key Bills)*
- *WildWildWeb.com* pathway = Domestic/international political action groups multiply due to frustration with political systems and turn

increasingly to violence + Netizens prove to be “virtual middle” that’s connected and confident

— *Hactivists Once Again Disable Large Swaths of Internet to Signal Anger Over ‘Digital Authoritarianism’ (Many IT Luddites View Government Control Over Web as Threat to Civil Liberties)*

- *Firewall.gov* pathway = Domestic/international political action groups multiply due to complexity of issues and grow in influence + Netizens prove to be oddball extremists that are networked and paranoid

— *Skirmishes Break Out Again on Internet Between Pro and Anti-Abortion Forces; Pharmaceutical Sites Crashed by Hacktivists (Virtual War Seen as More Frequent on Increasingly Partisan Internet Battlefield)*

- *Standalone.mil* pathway = Domestic/international political action groups multiply due to frustration with political systems and turn increasingly to violence + Netizens prove to be oddball extremists that are networked and paranoid

— *‘Green Terror’ Bombing Campaign Continues in Washington and New York; White House Vows Strong Response (Web-Based Environmental Terrorists Demand End to U.S. Military Presence Overseas).*

Technology

System = *Protocols*

The key questions involve the evolution of the Global Information Infrastructure (No LAN is an island or firewalls predominate) and the evolution of the Internet (unifying force of push technology or ghettoized into cultural empires due to language divisions). Wild card is effect of translation technology: does English become standard or is the Tower of Babel enabled? Studies show that new Internet surfers quickly settle down to an established pattern of visiting only a handful of sites, so as non-English portions of the Web grow, the Internet may quickly divide into language ghettos, thus preempting the move to a global “Infosphere” where cultures mix.

Watch E-Commerce as a signpost (see scenario headlines detailed below by pathway).

- *Network.org* pathway = No LAN is an island + “Push” technology predominates and translation technologies mean no borders exist between cultures
 - *Garth Brooks’s Global Pay-Per-View Webcast Reaches Over Half of World Population; Unofficial Record Viewed as Watershed in Creation of Global Village (Experts Predict WWW Will Become Global ‘Video Station’)*
- *WildWildWeb.com* pathway = No LAN is an island + “Pull” technology predominates and Internet language ghettos results in splintering of the WWW
 - *Study Shows WWW Hasn’t Linked Up World, Just Replicated Regionalized Structure of TV and Radio (Multiple Language Versions of Sites Mean Surfers Never Have to Leave Mother Tongue; E-Commerce Expected to Suffer)*
- *Firewall.gov* pathway = Firewalls predominate + “Push” technology predominates and translation technologies mean no borders exist between cultures
 - *China Launches Own Version of ‘WebPolice’ Link Detecting System; Large Areas of Web Now Off-Limits to Chinese Surfers (‘Ideological Pollution’ of West Drives Beijing’s Rush to Wall Off Internet ‘Toxic Waste Sites’)*
- *Standalone.mil* pathway = Firewalls predominate + “Pull” technology predominates and Internet language ghettos results in splintering of the WWW
 - *Iran Shuts Down All Known ISP Connections; Virtual Berlin Wall Erected to Stem Growing Political Unrest (Iranian-Version Internet Will Continue; ‘Technology Good, West Bad’ is Latest Teheran Line).*

State = *Connectivity*

The key questions involve the bridging of the last mile (wireless technology allows developing states to leap frog wireline infrastructure?) and emerging

digital ecosystems (chaotic or controllable?). Wild card is global impact of Y2K (last stupid act of 20th Century or harbinger of network chaos in 21st?). Y2K may serve as first great threat to global IT ecosystem, and “failing” Y2K may equate to failing New Economy, thus marking Y2K as separation point in emerging global digital divide. Watch viruses as a signpost (see scenario “headlines” detailed below by pathway).

- *Network.org* pathway = “Last Mile” development sees wireless technologies promoting leap-frog strategy in poorer states + emerging digital ecosystems see artificial worlds artfully managed
 - *Evernet Chairman Gives World Clean Bill of Health in Annual State of the Web Address; No Virtual Epidemics Foreseen for Next Quarter (New WWW Inoculation Programs Announced; Markets Respond Positively to News)*
- *WildWildWeb.com* pathway = “Last Mile” development sees wireless technologies promoting leap-frog strategy in poorer states + emerging digital ecosystems see nature’s chaos reign supreme
 - *Congo Virus Spreads to Most Networks in North America; E-Commerce Index Plummets for 6th Day in Row (Experts At Loss to Explain How Failures Spread From Central Africa Web; President Declares Virtual Disaster Areas, Pledging Aid)*
- *Firewall.gov* pathway = “Last Mile” development sees throughput limits impinging the ability of most in world to join the telecommunications revolution + emerging digital ecosystems see artificial worlds artfully managed
 - *Africa’s Tourism Industry Remains Moribund as Web-Based Virtual Reality Tours Replace Most Travel to Troubled Continent (Critics Complain About Disneyfication of World As Virtual Reality Resorts Replace Real-World Travel)*
- *Standalone.mil* pathway = “Last Mile” development sees throughput limits impinging the ability of most in world to join the telecommunications revolution + emerging digital ecosystems see nature’s chaos reign supreme
 - *Egypt Resorts to Air-Gap Defense in Response to Latest Global IT Epidemic; Seen as Another Sign of Internet ‘Chaos’ (More*

Money and Time Spent on Defense From Net Than Enjoying Its Economic Benefits, Complains Cairo).

Individual = Access

The key questions involve the emergence of the Evernet (do many resist 24-7-365 connectivity?) and the reality of the growing digital divide (does post-PC era mean gadgets for all? Or are only the wealthy super-connected?). Wild card is growth path of satellite industry and how it competes with resilient cable industry. Commercialization of space and spectrum bandwidth will create strong pressures on U.S. Military's ability to pursue RMA and Net-Centric Warfare paradigms. Watch the emergence of the Evernet (24-hour Internet connectivity via hand-held or worn gadgetry as a signpost (see scenario "headlines" detailed below by pathway).

- *Network.org* pathway = Merging of computing, navigation, and telecommunications results in average connected person never being lost, untouchable, or out of the loop + Digital Divide reduced because Post-PC Era means cheap gadget for all with access
 - *Last Minimum Security Prison Closed in U.S.; Evernet-Based Home Detention Program Now the Norm in All 50 States (Difference Between 7-24-365 Tracking of Average Citizen and Prisoners Detained at Home Raises Ethical and Social Issues—Who's Really the Prisoner Here?)*
- *WildWildWeb.com* pathway = Merging of computing, navigation, and telecommunications results in resistant segment of population that rejects vision of 24-7-365 connectivity + Digital Divide reduced because Post-PC Era means cheap gadget for all with access
 - *Idaho Governor Calls Out National Guard to Deal with New Age Commune Federation; Wilderness Loving Group Rejects 'Tyranny of Technology' (Idaho Struggles to Respect Group's Free Thought While Providing Basic Services to Underage Members)*
- *Firewall.gov* pathway = Merging of computing, navigation, and telecommunications results in average connected person never being lost, untouchable, or out of the loop + Digital Divide magnified to point where only the "few and rich" are superconnected

- *DoD Strained by Growing Demand for Emergency Overseas Evacuations of Americans in Troubled Regions (Critics Charge Military Is Becoming Taxi Service for Wealthy, Thrill-Seeking Vacationers; Can Wealthy Buy U.S. Foreign Policy ‘Service?’ Some Ask)*
- *Standalone.mil* pathway = Merging of computing, navigation, and telecommunications results in resistant segment of population that rejects vision of 24-7-365 connectivity + Digital Divide magnified to point where only the “few and rich” are superconnected
- *Digital Divide Becoming Religious Divide in U.S.; Religious Right’s Vision of ‘Freedom from Technology’ Taking Root in Midwest and South (Both Parties Predict Issue Will Loom in Next National Election).*

Culture

System = *Infosphere*

The key questions involve the impact of the emerging “experience economy” (unifies across classes or playground of the wealthy) and who “migrates” into the *Infosphere* (just E-commerce or does it become the center of social life?; see Michael Vlahos article cited in my website bibliography on global change). Wild card is the emergence of new religious faiths based on “life” within the *Infosphere*. Combination of Victorian-era Internet (telegraph), *fin d’siecle* mania, and growing gap between rich and poor in Globalization Era I created several new “faiths” that ruled the 20th Century (e.g., Bolshevism, Fascism). Similar patterns of events in Globalization II portends a similarly fertile milieu. Watch the emergence virtual reality environments as a signpost (see scenario “headlines” detailed below by pathway).

- *Network.org* pathway = Experience Economy opens up the world for the masses + economics, social life, and politics migrates into the emerging *Infosphere*
- *JesusNet.org Hailed by Many as New Form of Religion; Virtual Membership Grows Exponentially Around World (WWW’s Most Popular Site Evolving into 24-7-365 Portal for Faithful)*

- *WildWildWeb.com* pathway = Experience Economy parses out the world primarily for the wealthy + economics, social life, and politics migrates into the emerging *Infosphere*
 - *Orlando-fication of Amazon Basin Decried by South American Social Activists; High-Tech Playground for Rich Seen as Inevitable Outcome (Nature Can't be Copyrighted For Elites Only, Declare Critics)*
- *Firewall.gov* pathway = Experience Economy opens up the world for the masses + only economics migrates into the emerging *Infosphere*
 - *Asia Wide Web's E-Commerce Total Surpasses Europe Wide Web; Some Predict North America WW's #1 Position Endangered (Intra-Firm E-Trade Drives Asia's Heavy Web Growth Versus U.S. Focus on Entertainment)*
- *Standalone.mil* pathway = Experience Economy parses out the world primarily for the wealthy + only economics migrates into the emerging *Infosphere*
 - *Definitions of National Security Increasingly Focused on Protecting Bandwidth and Space Access (Rich States Rush to Stake Out Cyberspace and Outer Space as Citizens' Demands for IT Services Take Off Like a Rocket).*

State = *Kulturkampf*

The key questions involve the evolutions of Islamic fundamentalism and “Asian values.” Wild card is “Nixon goes to Teheran,” as Iran’s emergence from relative isolation would alter a number of bilateral relationships of importance around the world, possibly altering the international security landscape to a significant degree. Iran is identified as the leader of Shiite Fundamentalism in the region, so where it goes, potentially go others (including terrorist groups it has supported). Finally, its long-standing enmity with the U.S. has essentially defined much of anti-Americanism in the region. Watch the evolution of Iran and Malaysia as signposts (see scenario “headlines” detailed below by pathway).

- *Network.org* pathway = Islamic fundamentalism hardens + “Asian Values” become more accepting or outside ideas

- *APEC Meeting Produces New Agreement on Coordination Between Asia and West on Rising Collective Energy Needs; OPEC Seen As Real Loser (Cooperation Designed to Keep International Oil Prices ‘Reasonable,’ Says White House, Denying OPEC Charge of Collusion to Sap Arab Unity)*
- *WildWildWeb.com* pathway = Islamic fundamentalism softens + “Asian Values” become more accepting or outside ideas
 - *Perestroika-Like Historical Moment Captures Asia and Middle East Simultaneously as New Generation of Leaders Begin Tinkering With Rules (‘We Can No Longer Afford to Be Left Behind,’ Declares Iran’s New Moderate PM)*
- *Firewall.gov* pathway = Islamic fundamentalism softens + “Asian Values” become less accepting or outside ideas
 - *U.S. Ambassador Leaves Malaysia in Protest Against PM’s Decision to Execute American Human Rights Activist; White House Warns of ‘Turning Point’ in Relations (Malaysia Says It Will Not Be Cowed By Western Values)*
- *Standalone.mil* pathway = Islamic fundamentalism hardens + “Asian Values” become less accepting or outside ideas
 - *Iran Announces Major Expansion of Military Ties with China and Russia; White House Decries Proliferation of Missile Technology (U.S. Won’t Allow Oil Access to Be Threatened, Declares President).*

Individual = Aging

The key questions involve the emergence of “elder power (e.g., economic, political, social, spiritual) in northern states and the “middle aging” of many key developing countries (e.g., Mexico, Saudi Arabia). Wild card is profound shift from military to police spending, meaning deep downward pressure on defense budgets globally. Global defense spending and arms transfers are down significantly from their late Cold War highs (1987), and have remained relatively flat over the latter 1990s. Meanwhile, private ownership of small arms has skyrocketed over the decade (upwards of 400 millions arms held by individuals globally), and private security firms have ballooned in number around the world. As definitions of security

increasingly slip below the level of the nation-state, government defense budgets will suffer. Nothing can drive that faster than demographics. Watch the example of AARP's growing political power in the U.S. as a signpost.

- *Network.org* pathway = Middle-aging in developing countries puts downward pressure on military spending, crime, and conflict (post-adolescence) + rising power of elders in developed countries means more activist foreign policies

— *AARP Forges Alliances with Counterparts Throughout Europe and Asia, Creating International Presence of Formidable Proportions (Rising Influence of Elder Non-Governmental Organizations Will Greatly Determine Foreign Relations Among Great Powers, Predict Experts)*

- *WildWildWeb.com* pathway = Middle-aging in developing countries puts downward pressure on military spending, crime, and conflict (post-adolescence) + rising power of elders in developed countries means less activist foreign policies

— *Fiddling While Rome Burns? Social Activists Condemn Aging U.S. Boomers For Turning Back on Foreign Aid While Splurging on Old Age at Home (Can U.S. Ignore World Outside Locked Gates? And if So, For How Long?)*

- *Firewall.gov* pathway = Middle-aging in developing countries creates social costs that strain governments and foster inter-generational conflict + rising power of elders in developed countries means more activist foreign policies

— *Developing Countries Tire of Listening to Their Northern 'Elders,' As Global Environmental Conference Disbands With No New Agreements (Aging North Has No Right To Tell Younger South How to Spend Its Resources, Declares Brazil's Foreign Minister)*

- *Standalone.mil* pathway = Middle-aging in developing countries creates social costs that strain governments and foster inter-generational conflict + rising power of elders in developed countries means less activist foreign policies

— *In Surprising Shift, U.S. Elders Travelling Abroad Less; Only 1 in 10 Hold Passports (VR Holidays and Gated-Community Mindset To Blame, Says Travel Industry).*

Environment

System = Stress

The key questions involve the impact of global warming on weather patterns (altered or sped up?) and how well states respond to advancing environmental degradation. Wild card is *El Nino* or its equally evil twin sister *La Nina* occurring twice as frequently. That combination of weather patterns has the capacity to eat up economic growth in many parts of the world, especially in the Western Hemisphere, and such a heightened frequency could encourage the planet to pursue some fairly aggressive efforts to limit environmental damage associated with global warming. Watch the oceans (pollution, rising levels, fisheries, coastal areas) as a signpost.

- *Network.org* pathway = global weather patterns only speed up + global pollution/degradation elicits better state responses
 - *Increase in Weather-Related Disasters Fuels Wall Street's Push To Trade Global Weather Futures (New Bond E-Markets Seek To Manage World Weather Risk by Securitizing Against Acts of Nature)*
- *WildWildWeb.com* pathway = global weather patterns only speed up + global pollution/degradation elicits poorer state responses
 - *Less Foreign Aid + More Hurricanes = More Suffering For Developing Economies (West's Pollution Alters Planet's Weather, Charge Scientists, Leading to North-South Blame Game)*
- *Firewall.gov* pathway = global weather patterns dramatically altered + global pollution/degradation elicits better state responses
 - *Rising Waters Pit Continental Powers Against Littoral and Island States, Raising Specter of Immigration Pressures (As Coastal Areas Submerge, Will Small and Poor States Export 'Ocean Refugees?')*

- *Standalone.mil* pathway = global weather patterns dramatically altered + global pollution/degradation elicits poorer state responses
 - *Loss of Fresh Water Reserves Pits Neighbor Against Neighbor in Middle East, Leading Some to Predict Water Wars Imminent ('There's No One To Turn To But Ourselves,' Declares Iraq and Jordan, After Turkey Again Decreases Rivers' Flow).*

State = *Energy*

The key questions involve the evolutionary pathway of the global car culture (SUVs or hybrids?) and the impact of Asia's burgeoning needs. Wild card is hybrid technology sweeping the planet and decimating oil market and through it, the Mideast as well. For decades, many experts have predicted that increased global demand for oil would inevitably deplete resources and drive up cost, fueling inter-region tension over access to oil-rich regions. Depressed oil prices and resulting decline of OPEC stature (already low) contradict such predictions year after year, but many watchers still point to Asia's potential to drive up global demand. If hybrid technologies somehow obviate that pressure, then big changes are likely in the Middle East. Watch the emergence of hybrid models in Asia (esp. Japan) as a signpost.

- *Network.org* pathway = U.S. auto culture (QWERTY effect) and congestion it creates forces alternative + Asia's burgeoning energy needs generate big market impact
 - *Asian Demand Fuels Huge Boom in Hybrid Cars, As 'Big 3' Scramble to Keep Pace With Japanese and Korean Auto Firms (Shift in Production Focus Likely to Speed Up Hybrid Adoption Rates Around Planet, Benefiting Environment)*
- *WildWildWeb.com* pathway = U.S. auto culture (QWERTY effect) and congestion it creates forces alternative + Asia's burgeoning energy needs generate little market impact
 - *Hybrids Decrease West' Reliance on Mideast Oil; Depressed Oil Prices Seen As Death Knell for OPEC (Big Changes Inevitable for Region, Say Experts, Debating What's Next for Persian Gulf)*

- *Firewall.gov* pathway = U.S. auto culture (QWERTY effect) and congestion it creates continues unabated + Asia's burgeoning energy needs generate big market impact
 - *Asian Energy Demands Fuel High-Seas Tension With West Over Continued Access to Mideast and Caspian Oil (OPEC States' Increasingly Targeted by Both Sides in Economic 'Charm Offensive')*
- *Standalone.mil* pathway = U.S. auto culture (QWERTY effect) and congestion it creates continues unabated + Asia's burgeoning energy needs generate little market impact
 - *Ozone-Alert Days Reach Epidemic Proportions in Many Latin American Capitals, As Burgeoning Car Cult Strangles Economic Growth (Developing Economies Repeat Environmental Mistakes of U.S. and Europe, But At What Cost for Planet?).*

Individual = Biotech

The key questions involve the rise of genetic commerce (longer life for all or access only for the wealthy?) and biotech agriculture (new Green Revolution or snafus abound?). Wild card is the reversal of the drug trade from North to South and the death of the old narcotics industry. The big pharmaceutical companies won't let the new emerging class of "life-style drugs" fall into classification as controlled substances due to the tremendous profit potential they present. The distribution network afforded by the rise of the Internet complicates matters even more, fueling the global spread of new drugs in an unprecedented manner. In short, northern advanced countries would become the new exporters of controversial drugs, while many in the south may seek to restrict their flow due to the desire to preserve unique cultures. Watch the evolution of the global narcotics trade as a signpost.

- *Network.org* pathway = rise of genetic commerce means humanity enters new era of extended longevity and improved life + new class of biotech agriculture means new Green Revolution creates superabundance
 - *Average Life Expectancy Tops Century Mark in Japan, With Sweden Soon to Follow (Longer Lives Slow Population Decline in NewTech States, Reshape Economies in Profound Ways)*

- *WildWildWeb.com* pathway = rise of genetic commerce leads to social tension and crime-driven black markets because access greatly limited by cost + new class of biotech agriculture means new Green Revolution creates super-abundance
 - *LifeClock Vitamins Now Selling For \$1K Per Pill In International Black Markets, Fueling New Gang Wars Among Rival Criminal Distribution Networks (Pfizer Security Agency Raids Illegal Mixing Plants in Honduras, Touching Off Mini-War Among Legits and Caribbean Cartels)*
- *Firewall.gov* pathway = rise of genetic commerce means humanity enters new era of extended longevity and improved life + new class of biotech agriculture means unforeseen environmental dangers abound
 - *Terminator XIII Crop Virus Spreads From Iowa to Kansas, Enlarges BioGen Barrier Zone to Include All Midwest States (Many Protest BG Ban on Human Travel; Scattered Rioting Reported in Chicago and St. Louis)*
- *Standalone.mil* pathway = rise of genetic commerce leads to social tension and crime-driven black markets because access greatly limited by cost + new class of biotech agriculture means unforeseen environmental dangers abound
 - *New Zealand is 3rd State To Ban Import of NovaGen Food; Bio Scans at Auckland Airport New Used to Detect High Fat Concentrations, Leading to Visa Rejection for Travellers (Washington Threatens Economic Boycott of All NZ Products).*

Security

System = *Transparency*

The key questions involve the evolution of military-military ties among the great powers (deepen or atrophy) and the so-called Revolution in Military Affairs (only the U.S. can afford or do many states manage to pull it off?). Wild card is the business partnership of the PLA and the old Red Army, for it would resurrect the idea that Asian land powers are inherently ill-suited for participating in the global capitalist economy due to historical and/or cultural reasons. Watch the evolution of China's "PLA, Inc." as a signpost.

- *Network.org* pathway = mil-mil ties among great powers deepen + RMA is unaffordable for almost all
 - *China Agrees to Co-Production With U.S. of Next Generation Fighter Plane, Citing Reality of U.S. Technological Superiority (Agreement Forges Broad Partnership Between P.L.A. and American Defense Firms)*
- *WildWildWeb.com* pathway = mil-mil ties among great powers atrophy + RMA is unaffordable for almost all
 - *Beijing's Campaign to Reduce P.L.A.'s Self-Financing Declared a Failure by C.I.A., Citing Growth of Army's Consumer Products' Sales (P.L.A. Dominance in Service Industry in Several Cities Seen as Proof That Military Spends More Time Running Brothels and Bowling Allies Than Readiness and Training)*
- *Firewall.gov* pathway = mil-mil ties among great powers deepen + security dilemma drives many states to pursue RMA
 - *China Announces New Five-Year-Plan of Military Research and Development Cooperation With Russia, Citing Need to Counter U.S. Revolution in Military Affairs (C.I.A. Predicts Combined Resources Will Rival U.S.'s Within Two Decades If Plan Fulfilled)*
- *Standalone.mil* pathway = mil-mil ties among great powers atrophy + security dilemma drives many states to pursue RMA
 - *China's Heavy Defense Spending Seen As Drag on Economy, Forcing Slower Modernization of Information Infrastructure (Off-Budget Military Procurement Forces China to Let Public Debt Accumulate).*

State = Enforcement

The key questions involve the pace of WMD proliferation (slow or fast) and the effort to criminalize war (regular prosecution or mostly talk?). Wild card is the “big one” within U.S. that employs WMD and kills great numbers, for that would immediately elevate public concerns regarding both terrorism and WMD, probably leading to significant restrictions on civil liberties for some groups and the more rapid development of a National

Missile Defense than otherwise would occur. Watch for the emergence of terrorist organizations or leaders committed to using WMD as a signpost.

- *Network.org* pathway = WMD proliferation continues with little practical effect + criminalization of war means regular prosecution
 - *Libya hands Over Military Officers Involved in Starting Rebel Movement in Chad, Ending Threat of War Over Use of Bio-Chem Weapons (Qaddafi-Directed Plot Brought to Light, But Officers Serve as Scapegoats)*
- *WildWildWeb.com* pathway = WMD proliferation continues with little practical effect + criminalization of war is mostly talk and little action
 - *Columbian Narco-Mercenaries Continue Offensive Into Peru, But War Not Seen As Likely (Privately-Funded Invasion Designed to Counter Local Peruvian Counter-Drug Efforts)*
- *Firewall.gov* pathway = WMD proliferation accelerates as Lenin-After-Next cracks operational code for success + criminalization of war is mostly talk and little action
 - *Captured Tamil Separatists Arraigned in Indian Court Despite Pleas for World Court Trial (Use of Nukes Keys New Delhi Decision to 'Police Their Own')*
- *Standalone.mil* pathway = WMD proliferation accelerates as Lenin-After-Next cracks operational code for success + criminalization of war means regular prosecution
 - *Congo Rebels Employ Biological Weapons For 3rd Time, But Great Powers Still Not Inclined to Intervene (Damage of Precedent-Setting Use Weighed Against Likely Casualties).*

Individual = Privatization

The key questions involve the growth of private security forces and how much they “tame” megalopolises around the world and the pace of the “people’s arm race” (i.e., does gun control become small arms control?). Wild card is a “1968” of Littleton-like shootings in U.S. and sweeping change in gun laws both domestically and for export. A sustained wave of high-profile incidents (perhaps surrounding the Millennial event?) could

trigger a now-or-never tug of war between pro- and anti-gun control advocates that would elevate the issue to the top of America's social and political agenda. Watch urban crime rates as a signpost.

- *Network.org* pathway = growth of private security forces means increased ability to police mega-cities + individual possession of weapons increasingly regulated
 - *City Council Grants License to Security Solutions, Inc. for Additional Downtown Nighttime Patrols Against Protests of Police Union (Lowest Bid is No Way to Approach Police Work, Says Union Leader)*
- *WildWildWeb.com* pathway = growth of private security forces means increased civil strife fueled by private agendas and access to extra-legal resources + arms race continues unabated in individual possession of weapons
 - *Feuding Among London's Private Security Agencies Erupts in Violent Clashes, Forcing 10 Downing Street to Barter Peace Accord (Sense of Government's Loss of Control Disturbing to Civil Liberty Activists Who Fear Rise of Private Justice)*
- *Firewall.gov* pathway = growth of private security forces means increased ability to police mega-cities + arms race continues unabated in individual possession of weapons
 - *Crime Rates Continue to Drop in Major Cities, Thanks to Explosion of Surveillance Camera Networks (Infrared Systems Revolutionize Police's Ability to Watch Streets 24-7-365)*
- *Standalone.mil* pathway = growth of private security forces means increased civil strife fueled by private agendas and access to extra-legal resources + individual possession of weapons increasingly regulated
 - *Liberty Party Black Shirts Engage In Another Night of 'Fag Bashing,' But Police Take No Immediate Action (Gay Leaders Decry 'Sanctioned Hate Crimes,' Call For New Elections).*

Step IV: Developing threat profiles for each global pathway

Network.org pathway

A complete listing of all *Network.org* pathway matrix matches appears in Figure 8 below.

Figure 8. Compilation of *Network.org* matrix outcomes

 <i>Everything comes together at reasonable pace</i>						
	Economics	Politics	Technology	Culture	Environment	Security
System 	Fewer currency crises; more linked currencies	Emerging powers seek & gain inclusion one-by-one	No isolated nets; push & language tech = integrate	Exp Econ unifies by sharing; all society migrates to Info-sphere	Global weather "faster"; better state pollution efforts	Mil-mil ties deepen; RMA too costly for all save US
State 	Herd = 1-ruleset; crises teach transparency	Globalization teaches well; states favor int'l orgs	Stable IT ecology; wireless leapfrogs in poorer states	Islamism hardens; Asian Values become "big tent"	US auto culture adapts; Asian oil req's stress markets	Slow prolif.; strong prosecution of war criminals
Individual 	Winners link across borders; Losers find "up" avenues	Splinters find main-stream; Netizens = active, stable middle	"Digital Weave" is reality; Digital Divide gives way to gadgets	Elders = more int'l; South "grows up" & calms	Much longer & better lives; new "Green Rev"	Strong police city-states; guns more regulated

By definition, this is the global pathway where many good things happen—at least good from the prospective of those who join the Network and embrace its principles of equal but regulated access to information/entertainment, goods and services, employment, etc. With the acceptance of the bulk of emerging powers by the established powers, we see a world in which approximately two-thirds of the population are in the club of developed economies, leaving only a third on the outside looking in. But because the Network Powers have largely interlocked their military establishments, there is no significant military champion toward whom this outside

population could turn to press any demands for more global equality. Anyway, the Network Powers offer those remaining outsiders all sorts of electronic access to the Network, creating virtual job-migration opportunities for the educated among them (i.e., work sent over the network for completion by workers in their home locations), and satisfying mass entertainment avenues for the rest (i.e., the virtual experiencing of the good life through advances in sensory-drenched virtual environments and other entertainment venues in the ever-expanding experience economy)¹¹. Given these overarching realities, there are few international crises of note in the *Network.org* pathway, and what few crises do occur are congregated at the lower end of the conflict spectrum. However, as the main Network Power, the United States will tend to get involved in all crises, no matter how small, although our involvement will be even more multi-faceted and not merely involve just the military. As main beneficiary of the collective good of the Network system, the U.S. will follow a strict “nip it in the bud” approach to perturbations in the smooth running of the global Network.

The strong security role of the U.S. does present a vulnerability for the Network, however. Because the Network effectively out-sources the function of collective violence prevention/application to the U.S., defense becomes a lost art outside the United States. This imbalance could backfire along a variety of paths: 1) the U.S. could grow weary of the role and suddenly disavow it; 2) the U.S. could abuse its inordinately strong security position and by doing so, alienate a large portion of the Network into passive resistance to U.S. leadership; and 3) the problem of “free-riders,” or unequal burden sharing, could result in dangerous underspending on defense (especially given the aging population within the Network) that leaves the Network rather thinly defended against outside “threats” (i.e., there are no true “threats” to the Network, only “flaws” to be “patched”), be they conventional or WMD. This is because the bulk of security spending within the Network will more closely resemble law-enforcement models than traditional military models.

At the system level, there is no threat—by definition. Network solutions are the norm, with no winners or losers, but only differences in the size of

11. The term comes from B. Joseph Pine II and James H. Gilmore, “Welcome to the Experience Economy,” *Harvard Business Review*, July-August 1998, pp. 97-105.

niches occupied. There will still be some friction, of course. Until alternative sources of energy (e.g., hydrogen fuel cells) come on-line approximately a generation from today, the burgeoning energy requirements of *S/fearWorld* will be a major stress on the global economy. But with necessity comes ingenuity, and since the Network Powers pool their collective defense efforts (thus diminishing the burden on them all), significant state resources are freed up for global R&D efforts, such as those in alternative energy (driven in large part by the threat of global climate change). Once these alternative sources are developed by the Network, their marketing to outside or peripheral partners serves as the *quid pro quo* for Network membership, as in “accept the conditions of Network membership, and we’ll hook you up for complete power grid access.”

At the state level, the main challenge to the Network lies with ardent nationalists who reject the homogenized nature of the Network system. These disaffected outsiders will endeavor to force their respective countries to “opt out” of the Network and pursue a development path more in line with their historical cultural lineage. The greatly secular nature of the Network will drive these nationalists to define cultural distinctiveness in strongly religious overtones, usually with an anti-technology streak (“You’re playing God with all your technology!”). Given the Network’s tendency for concentrating on network-wide security (i.e., keeping the system up and running) vice perimeter defense, any external state-mounted military threats to Network order will be very worrisome to those members on the outskirts of the system.

But again, because most of the world’s discretionary budget lies within the Network, any outside challenger-state would either have to satisfy itself with making trouble in its own “backwater” area or seek to disrupt the Network through an asymmetrical threat (either something insidious such as cyber-attacks on the system itself or something completely “over the top” such as indiscriminate WMD usage). Since the Network would be too robust for any individual state challenger to “bring down,” the asymmetrical threat would be employed largely for blackmail purposes. In order for this to work, the challenger states would need to keep their demands reasonable (i.e., largely monetary in focus), so that the Network would be inclined to write off the cost as a “business expense.” If not, or if the blackmail approach were pursued too frequently, the Network would likely be mobilized to crush the offending challengers as “threats to the good order

of the Network.” Since the outside states mobilizing such threats would likely be those already targeted for “absorption” into the Network (hence the heightened antagonism of the nationalists), it would be unlikely that anyone state would mount a serious threat to the Network for an extended period of time.




At the level of the individual, most are very satisfied, either with life within the Network or—if they live outside the Network—with their reasonably unfettered electronic access to the individually satisfying avenues of personal enrichment created by the Network’s vast global IT infrastructure. In short, the Network “buys off” individuals one by one by providing almost unlimited diversity of technology-based experiences. So while *external*, or public life within the Network may be bland and homogenized, the *internal* life of individuals with access to the Network’s resources will be quite satisfying and fulfilling, albeit in a manner that dilutes social cohesion. This lack of social cohesion, combined with ready access to tools (mass media and IT connectivity) that could quickly mobilize anti-Network sentiment, will result in periodic “rebellions” within the Network by small unions of extreme anti-technologists in the mode of UNABOMBER. These 21st Century Luddites will represent a marginalized section of society, and although targets for their anger will be plentiful, most will be well protected.

Outside the Network, small-scale disturbances within countries will be far more plentiful, and the entire area outside the Network will—in effect—be considered one big “bad neighborhood” by those within the Network, or, more to the point, as some sort of “wild hinterland” not yet tamed by the Network. The application of military force by the Network outside the Network will follow a pattern of strict proportionality (reflecting the general disappearance of lethal technologies within the Network due to strict regulation), i.e., so long as antagonists keep to non-lethal technologies, the Network forces will employ only non-lethal technologies. But because non-lethal technologies are widely used by individuals within the Network as personal safety instruments against crime, Network forces will likely be engaged in a sort of non-lethal “arms race” with external antagonists (i.e., the ubiquitousness of non-lethal self-defense technologies will force Network forces to be ever inventive in their application against intelligent foes).

WildWildWeb.com pathway

A complete listing of all the *WildWildWeb.com* pathway matrix matches appears in Figure 9 below.

Figure 9. Compilation of *WildWildWeb.com* matrix outcomes

<div>  <i>Things loosen up and progress, but too fast & furious</i> </div>						
	Economics	Politics	Technology	Culture	Environment	Security
System 	More currency crises; less linked currencies	Emerging powers seek inclusion; suffer individual rejection	No isolated nets; pull tech & lang. ghettos=fragment	Exp Econ divides by wealth; all society migrates to Info-sphere	Global weather "faster"; poorer state pollution efforts	Mil-mil ties atrophy; RMA too costly for all save US
State 	Herd = capital controls; crises teach transparency	Globalization teaches well; states seek US favors	Unstable IT ecology; wireless leapfrogs in poorer states	Islamism softens; Asian Values become "big tent"	US auto culture adapts; markets handle Asian oil req's	Slower prolif.; weak prosecution of war criminals
Individual 	Winners secede from society; Losers find "up" avenues	Splinters resort to violence; Netizens = silent, stable middle	"Digital Weave" rejected by many; Dig. Div. gives way to gadgets	Elders = less int'l list; South "grows up" & calms	Bio-gen black markets flourish; new "Green Rev"	Civil strife is norm & privatized; guns poorly regulated

This is also the global pathway where many good things happen—but at too fast and furious a pace for individuals and governments to keep pace. Capabilities outstrip rule-making, and in some key instances, common sense. Here, all states are chasing the “good life,” with a speed and determination that betrays the fear that “if I don’t get there first, I won’t enjoy it.” There’s very little sense of international norms or collective goods from which all humanity draws benefit. Instead, emerging powers aren’t interested in seeking the acceptance or blessing of established powers, who fear their up-and-coming economic prowess but are too busy themselves running to stay ahead to dare look over their shoulders as the new competition closes in.

The emerging powers can't be bought off on any level anyway. They want theirs too and they want it now. This is a dicey, fast-moving world where you're on your own for the most part. Competition is fierce and there are few safety nets. The harsher form of rough-and-tumble American capitalism has been running amuck around the planet for a while now, instantly declaring winners (who survive by being tough on themselves) and finger-ing losers (whom everyone is tough on). In the *WildWildWeb.com* pathway there are lots of crises and conflicts on the lower end of the spectrum, but not too many responses, because there are few responsible powers—just incessant hucksters of their country's rapacious multinationals. These leaders are about moving goods and services, not bodies into harm's way. Everyone knows this is a creatively destructive process—the market—so the philosophy of many powers is akin to the Yellowstone Fire Department:¹² a certain amount of this stuff is natural, so let it burn according to nature's way. There is some potential for higher-intensity conflict, and given the fast-paced nature of this pathway, we may be caught off guard when it comes.

In terms of system-level threats, there aren't really any. How do you threaten an "international order" when there isn't one? Most likely, you'd be told to get out of the way because you're holding up traffic. Anyway, everyone looks out for themselves in this pathway, purchasing security like so much term life insurance. Yes, governments are big sellers, but increasingly it's a private affair, with multinationals defending themselves or outsourcing to full-time professionals. The net worth of private security firms often is larger than that of the state military in smaller and mid-sized countries. You'd think there'd be some potential for an alliance of countries on the skids, but bankruptcy isn't exactly conducive to military build-ups. As for emerging powers who reach the top only to find it a far less friendly spot than they always imagined it, most will decide that living well is the best revenge. But make no mistake about this system's major vulnerability: there is little to no sense of collective security, so there's ample opportunity to use threats or force without triggering a system-level response. In short, the strong do what they will and the weak do what they must.

12. Thanks to Henry H. Gaffney, Jr., of CNA for this concept.

The key threats in this pathway are at the state level. In particular, the states presenting the greatest potential for disruptive behavior are those on the cusp of making it big. Failure at this point is likely to engender an angry domestic scene leading to the overthrow of the leadership. Once expectations are surging, the reality of sliding back is simply too much for many people to stomach, so countries are likely to lash out. Their targets may be neighboring areas that possess resources—sort of a snatch and grab from those they suspect are torpedoing their efforts at economic self-advance (remember Saddam and Kuwait?). Even more likely is that disgruntled groups will lash out against favorite ethnic “scapegoats” (see the Chinese as targets in Indonesia). Or more grandly, these states, or groups within them, may target the established powers themselves, taking it the hometowns of these nasty multinationals that treat their country like so much chattel and nobody does anything about it. How the established powers respond to this is a big question. Because there’s no collective security and little engagement for purposes other than market penetration, there’s a vulnerability for almost colonial-type wars where established powers feel the need to suppress unruly distant market shares. While much of this will be done on the sly, using private forces, there’s a heightened potential for individual arms races, or state-supported business conglomerate stocking up in anticipation of almost gangland-like conflicts with their top competitors (i.e., entrepreneurial violence).

At the level of the individual, it’s pretty much a dog-eat-dog world. Winners live a life of plenty, while losers get wiped right off the economic landscape. The same lack of concern for collective security on the system level is seen here. People arm themselves and look out for themselves. The police are generally weak, preferring mostly to defer to the private security world, where they’re better paid to take that kind of risk. Most advances in the technology of killing have been on the one-on-one or one-on-a-few level, and it’s all readily accessible over the Internet, which has become “rant central” for the world’s disaffected losers. In general, those unhappy with the way things are can easily connect with one another, which gives them a leg up on the winners, who essentially stay that way by avoiding dependency on others. Moreover, those “in power” don’t—by definition—make much of an attempt to rule the unwashed masses through ideology or control over mass media resources (unless you count advertising). Information-wise, everything’s out there to be had, although the disaffected types suspect the

“truth” is always being withheld from them (i.e., the *real* reason why they’re losing while others are winning).

In general, it’s the larger social tendency to view life as “you get yours, and I’ll get mine” that is this pathway’s greatest vulnerability, for not only does it encourage winners to eschew collective goods like security, but it feeds a loser mentality that suspects that there’s a finite amount of wealth out there, and the only way to get yours is to take somebody else’s away. In short, the lack of a “share the wealth” philosophy fuels a rapaciousness on both ends of the economic spectrum: the rich keep it neat because they can, while the poor do it dirty because they must. So this pathway features a lot of criminality and terrorism with a capitalist streak. Both avenues feature a lot of violence, because arms are plentiful on the level of the individual and personal self-defense is considered the not just a necessity, but the ideal. As for those without the stomach for such nastiness on a one-to-one level, there’s still plenty of opportunity for mob-level violence in a world full of suspicions that “things are fixed” and “the winners always have an inside track.” Since spending on collective goods such as infrastructure is weak (winners tend to spend on themselves), breakdowns in public services are frequent, and often serve as kindling for riots by well-armed individuals.





***Firewall.gov* pathway**

A complete listing of all the *Firewall.gov* pathway matrix matches appears in Figure 10 below.

This is the global pathway where plenty of good things happen, but not to the same degree in all regions of the world, or at the same pace. The difference in degree is largely a matter of economics, as some areas of the planet do better than others. But the difference in the pace of change is largely a matter of political choice. Not every region is ready and willing to jump onto the bandwagon of American-style gung-ho capitalism with its slavish devotion to ever “leaner and meaner” economic units. *S/fearWorld*, for instance, refuses to emerge from its economic crisis of the late 1990s “baptized” with global—meaning American—values, but instead clings to its “Asian values” and its export-driven growth strategy, focusing on forging new market relationships with *OilWorld*, upon which it relies so heavily for energy supplies. *OldWorld* likewise retains its essential welfare-state demeanor, trading off lower growth rates for more peaceful domestic life.

America, with its huge domestic market, concentrates on bringing the rest of *WestWorld* into a super free trade zone. Meanwhile, *CareWorld* remains largely a backwater, as the other regions focus mostly on securing their own domestic and regional markets against outside competition.

Figure 10. Compilation of *Firewall.gov* matrix outcomes

<div>  <i>Regions come together at own pace; paths diverge</i> </div>						
	Economics	Politics	Technology	Culture	Environment	Security
System 	Fewer currency crises; more linked currencies	Emerging powers reject exclusion & seek group autonomy	Firewalls dominate; push & language tech = integrate inside	Exp Econ unifies by sharing; Info-sphere = only economy	Global weather changes; better state pollution efforts	Mil-mil ties deepen; fear drives many RMA's
State 	Herd = 1 ruleset; crises lead some to opt out	Globalization teaches badly; states seek US favors	Stable IT ecology; last mile remains purview of elites	Islamism softens; Asian Values become "long pole"	Continued gas auto growth; Asian oil req's stress markets	Rapid prolif.; weak prosecution of war criminals
Individual 	Winners link across borders; Losers fend for selves	Splinters coopted by elite; Netizens = underground dissidents	"Digital Weave" kept from masses; Digital Divide worsens	Elders = more int'l list; South = generational conflict	Much longer lives; biotech dangers & snafus abound	Strong police city-states; gun races flourish

In short, the worlds' regions are all running with this new economic paradigm known as the IT Revolution, but each at its own pace and with special adaptations to local conditions. Having reached the point of becoming wired into the global IT infrastructure, most parts of the world came to the old-fashioned conclusion that "there's no place like home." A new emphasis on preserving regional differences and diversity ensued—especially the preservation of native languages, which the almost all-English Internet threatened. As the Information Age brought people closer together in a "global village," most simply decided that, while it's fun to travel the globe everyday in a virtual fashion, all the important things in life remain just around the corner. So yes, people "think globally," but "act locally." And anyway, technology soon advances to the point that such a tribal outlook is

actually facilitated (e.g., instantaneous computer-mediated translations stopped English from becoming a universal language of business or culture). The marketing of consumer goods likewise becomes so market-specific that it's almost impossible to talk about "global" brands anymore (e.g., the regional divisions of multinationals become so "home-based" through niche-branding that *OldWorld's* "Coca Cola" has more in common with *OldWorld's* "McDonald's" than with *WestWorld's* "Coca Cola"). Most influentially, the aging of populations across the more advanced regions of the world (e.g., *WestWorld*, *OldWorld*, *S/fearWorld*) greatly fuels each region's desire to "go it's own way." In short, whenever technology makes it possible, people choose to "go ethnic," stick with their roots, etc.

The *Firewall.gov* pathway looks rather familiar, maybe even comfortable to many who grew up accustomed to the Cold War's division of the world into "us, them, and them, and the rest of them." There's something pleasantly stable about only having to worry about your chunk of the world, leaving "their values" to deal with "their problems." But the vulnerabilities of this scenario are significant. So long as economic advance was achieved by all regions to a reasonable degree, things would remain relatively harmonious. But this "each to his or her own way" is likely to lead to weak international efforts at dealing with global problems, such as global warming, pollution, humanitarian disasters, and the like. Regions are also less likely to make sacrifices for the greater global good, preferring to "take care of their own first," while treating other regions on a strictly "COD" basis.

But the biggest vulnerability in this pathway is the growing tendency for regional approaches to dealing with global economic processes. This "enclave" mentality engenders bad economic policies based on the illusion that capitalism's laws are somehow mutable by local circumstances, local values, and local traditions. What the world ends up with are goofy instances of gross economic mismanagement leading to regional economic depressions with global spillover effects (like the Asian crisis of the late 1990s). Once into a crisis like this, the region can either open up to the outside world and risk "economic invasion" by another region, or hunker down and try to weather out the storm. Since no one is really minding the "system store" (the underfunded IMF becomes an impotent cheerleader left to the sidelines), instead preferring to concentrate on developing their own economic enclaves, hard times only encourage greater inwardness among the world's various regions. In short, no one wants to catch the "contagion."

System-level threats will exist in the *Firewall.gov* pathway because this path promotes the development of blocs over the maintenance and expansion of international, networking organizations. Good fences make good neighbors during times of plenty, but once hard times arrive (either for all, or just some), they can quickly harden as boundaries. “Good neighborhoods” want to keep out “bad people,” while “bad neighborhoods” inevitably become “off limits” to “good people.” One important fault line in this pathway is access to natural resources, and since the world’s more developed regions have taken a “hands off” attitude to encouraging peace outside their own blocs, *OilWorld* is likely to remain a volatile place, both internally and in its relations with outsiders. In this pathway, we’d look back at the Persian Gulf War as the first of many “north-south resource wars” (perhaps also segueing into “east-west resource wars”). This pathway’s lack of attention to global environmental issues is also likely to encourage the global “blame game,” especially if more advanced regions commit “bio blunders” that cross regional boundaries.

The nastier evolution of this pathway would feature a confluence of “blaming” where richer and poorer blocs might find themselves squaring off in an odd mix of asymmetrical conflict: a poor region offering waves of helpless refugees or terrorist pinpricks, and a rich region occasionally reaching out to employ devastating destruction against identified “centers of gravity.” In the end, nothing much would change, although the continued loss of life could harden each side’s position over time.

There are fewer threats at the state level because most of the power, control, and competition are aggregated on the bloc level. However, struggles between states on the peripheries of separate blocs could trigger system-level interventions by respective great powers. Such conflicts would likely be resource driven (e.g., access to energy, clean air or water, or health care). There may also be some bloc-vs.-bloc conflict via proxies that keep the fighting—though not the reason for the fighting—at the state level.


Given the preference for rigid boundaries and the firewall mentality (i.e., “keep out their problems, their pollution, their diseases, etc.”), resentment at the individual level against the “others” will be strong, but largely channeled by the blocs in the manner of the Cold War rivalries between East and West. Outsiders may be characterized and treated as threats, and cross-bloc migration will be a contentious topic. For the most part, however, the

interests of the individual level are subordinated to the greater good of protecting one's own "bloc" against all others. This "members only" atmosphere means substantial individual liberties for those that belong and believe, with severe restrictions and even official persecution and ejection of those who do not.

***Standalone.mil* pathway**

A complete listing of all the *Standalone.mil* pathway matrix matches appears in Figure 11 below.

Figure 11. Compilation of *Standalone.mil* matrix outcomes

 <i>Play at your own risk? So many go their own way</i>						
	Economics	Politics	Technology	Culture	Environment	Security
System 	Fewer currency crises; less linked currencies	Emerging powers reject inclusion; seek own autonomy	Firewalls dominate; pull tech & language ghettos= fragment	Exp Econ divides by wealth; Info-sphere = only economy	Global weather changes; poorer state pollution efforts	Mil-mil ties atrophy; fear drives many RMA's
State 	Herd = capital controls; crises = some opt out	Globalization teaches badly; states favor int'l orgs	Unstable IT ecology; last mile remains purview of elites	Islamism hardens; Asian Values become "long pole"	Continued gas auto growth; markets handle Asian oil req's	Rapid prolif.; strong prosecution of war criminals
Individual 	Winners secede from society; Losers find for selves	Splinters resort to violence; Netizens = oddball, persecuted extremes	"Digital Weave" rejected by many; Digital Divide worsens	Elders = less int'l list; South = generational conflict	Bio-gen black markets flourish; biotech snafus abound	Civil strife is norm in "bad" areas; guns well regulated globally

This is the global pathway where plenty of good things don't happen, and because they don't happen, all the promise of the "good life" felt by many in the world at the end of the 20th Century evaporates, leaving most with the sense that the Information Age provoked many of the same systemic dangers as did the Industrial Age during its dark days of World Wars. In effect, the same learning curve had to happen: new technologies beget new

terrors, and the less scrupulous among us simply had to see what could be had through employing those terrors. Also, much of the hope for the “long boom” of post-Cold War global economic prosperity proved misplaced. Again, another difficult learning curve was in the offing: the IMF’s ambitions to serve as an FDIC-like entity for the global economy was matched neither by its resources nor its strategic prowess. There was simply so much more we needed to learn about globalization before mastering its sine wave. As such, the emerging powers were not easily integrated into the international power system, thus depleting it of the flexibility it so desperately needed when a string of regional economic depressions sent the global economy into a prolonged tailspin.

In short, this is a world not doing so well. Major regions are faltering, and by faltering they feel nervous both about the future and their ability to get what they need from an outside world increasingly absorbed by its own internal problems. As such, governments are no longer comfortable about betting on the future, and instead seek significant hedges against it. So instead of applying resources to ameliorate the problems they’re experiencing, too many powers are taking the tried and true route of national “whole life insurance,” otherwise known as defense spending. But for most states, the rise in military spending spells not a rise in external ambitions or aggression, but rather a fear of what lies within. People are restless and increasingly unhappy. For a vast portion of the population in advanced economies, this is the first period of great social and economic challenge they have ever experienced. Again, a steep learning curve results across the board.

In this pathway, too many states simply try to retreat into themselves to wait out the global economic storm. The so-called virtual powers are unwilling to return to the days of military power (seen as a poor investment during hard times), but being so inclined, aren’t about to stick their heads out of their financial “fox holes” while so much tumult is out and about. States without the requisite financial security do turn more readily to traditional means of securing their future, meaning the global landscape is full of Haves Nots with “too much” firepower and Haves without enough (remembering, of course, that poorer states will either be armed with large amounts of antiquated military technology or very small amounts of modern technology—*there is no such thing as a poor state with lots of modern technology*). With the United Nations looking too much like the League of Nations

and the United States largely lost in its own domestic fire storms, there isn't much of a systemic response to this uneven global security environment. So while there aren't too many system-level threats, that mostly because there isn't much of a system.

So the biggest system-level vulnerability is the combination of no collective security with an awful lot of sophisticated weapons out there. There's a lot of unresolved political issues stemming from the substantial backsliding that's occurred across Eastern Europe, Russia, and most of Asia. The third great "wave" of democratization is experiencing a severe riptide that sucking away many moderate voices at the time when they're needed most. This is most problematic where economically weak but militarily strong areas bump up against the wealthier ones. There's a strong sense of "betrayal" among those suffering most in this global economic downturn, and "somebody should pay." Assumptions about the "end of ideologies" turned out to be premature: these hard times offered no clear rationales for association on a large scale, so individual states reached deep into their past for all sorts of idiosyncratic notions as to why they were "special" and would survive this difficult period intact. Naturally, the more "special" you are, the more pedestrian your neighbors become, meaning life "owes" you more and them less. So if there aren't enough "lifeboats" in this "shipwrecked" global economy, you'll just have to do what's necessary to ensure your survival. Therefore most threats reside at the state level. The big concerns are faltering states and the opportunists that inevitably surround them. This is a volatile mix, and there will be some high-end conflicts as a result.

All this "looking out for oneself" mixes badly with the surfeit of global environmental problems that no one seems to be addressing. Global warming is mishandled, leading to all sorts of refugee problems, most driven by rising levels of contagious diseases. There is a "dumping ground" mentality at work here, as too many states simply want to "tip their garbage cans" over the border and let the "trash" roll down the hill to someone else's "political watershed." Lacking the more gradual economic decline of the *Firewall.gov* pathway, the *Standalone.mil* pathway features states simply "boarding up their windows" against the tumult outside.

In this pathway, states apply plenty of "clamps" on individuals within their borders. There are tools, however, to connect individuals and groups, as well as the incentive. Many will be waiting for something big to emerge to

explain the sudden failure of the Information Age to live up to its early, rosy predictions of a “golden capitalist age.” Thus, people are looking for a hope or cause that will signal a new direction, or a new synthesis of past trends. In this, there is vulnerability. Someone able to organize and direct multiple, distinct efforts in a common direction could be very powerful. In short, people are open once again to the idea of “great men,” “powerful leaders,” and the “man on the white horse.” Individuals promising clear visions of a certain future will be in demand; yesterday’s wacky infomercials designed to capture your disposable income become today’s wacky political ads designed to capture your disposable liberty.

Step V: Five “worlds-within-worlds” + six degrees of separation = Regional Scenario Grid

Structure of the Regional Scenario Grid

Now that we’ve completed our creation process for the global scenario pathways, the next series of steps involves examining the five worlds-within-worlds in a roughly similar manner. The first step in developing the worlds-within-worlds scenario pathways involves creating an overarching matrix that combines the five worlds with the “six degrees” of analysis (minus the global level already covered in Steps I-IV; see Figure 12 below). This five-by-five matrix yields 25 separate cells, or themes of regional change. Our goal in selecting each theme was to capture that element of each region’s change and/or uncertainty that is most indicative or encompassing for the nexus in question.

Regional Scenario Grid themes in detail

WestWorld

- *Inter-Regional Nexus = Last Resort*, or the degree to which the U.S. maintains its status as sole military superpower as the U.S. seeks to design a robust global economic architecture
- *Regional Nexus = New Economy*, or the question of how long the U.S. can keep its IT-intensive, “Goldilocks economy” running smoothly

Figure 12. Regional Scenario Grid themes

	West World	Old World	Care World	Oil World	S/fear World
Inter-Reg'l	Last Resort	Atlantic Bond	Capital Flows	Co-Dependency	Leviathan
Reg'l	New Economy	Old Fears	Re-colonization	Next Generation	China
Intra-Reg'l	All in the Family	Ostpolitik	Pillars	Water	Rivalries
Nat'l	Generations	Deregulation	Virtual States	Reengineering	Permeability
Sub-Nat'l	Losers	Balkanization	AIDS	Islamism	Consumerism

- *Intra-Regional Nexus* = *All in the Family*, or the potential for the U.S. either to “expand” through the extension of NAFTA southward or through the “dollarization” of regional economies
- *National Nexus* = *Generations*, or the potential for generational conflict over resources between the aging Boomer Generation and the upcoming Millennium Generation
- *Sub-National Nexus* = *Inequalities*, or the degree to which the cross-state markets for illicit drugs poison or retard the development and maturation of “good government” in Latin America

OldWorld

- *Inter-Regional Nexus* = *Atlantic Bond*, or the evolving nature of the U.S. security commitment to Europe and its impact on NATO’s future, with the *sub rosa* plot line being whether or not Russia is considered part of Europe or an outsider
- *Regional Nexus* = *Old Fears*, or whether or not the old questions about Germany and Russia have finally been answered with regard

to East Central Europe (and, to a lesser extent, Germany's westward relationships, especially France)

- *Intra-Regional Nexus = Ostpolitik*, or the nature of the political evolution of recently democratized states in East Central Europe and how the Balkans experience hinders or speeds up European security integration
- *National Nexus = Deregulation*, or the degree to which individual European states cede national sovereignty in the name of the Union
- *Sub-National Nexus = Balkanization*, or the degree to which the break-up of the former Yugoslavia represents Europe's past or future (with Balkanization not necessarily meaning country break-ups in most instances, but merely "tougher borders" both *around* and *within* states), especially as immigration continues to increase from developing countries

CareWorld

- *Inter-Regional Nexus = Capital Flows*, or the relative balance between being "paid" and receiving "aid"
- *Regional Nexus = Re/Decolonialization*, or the question of whether Africa's next generation of leaders will create "tigers" or "strip the carcass clean" through the economics of ethnic conflict
- *Intra-Regional Nexus = Pillars*, or the question of which states (especially South Africa) are able to step up to the plate as benevolent regional hegemons
- *National Nexus = Virtual States*, or the degree to which governments can control their own territories and internal ethnic rivalries
- *Sub-National Nexus = AIDS*, or the question of the long-term impact of having 1-in-4 adults infected with the HIV virus on local governments' ability to foster good social order, especially as the urban middle class is most hard hit (i.e., depriving Africa of its most educated, modernizing, and entrepreneurial people)

OilWorld

- *Inter-Regional Nexus = Co-Dependency*, or the possible evolutions of the world's dependency on the region's oil supplies and the region's

relatively unidimensional economies, with the U.S. as ever-present external balancer

- *Regional Nexus = Next Generation*, or the potential of the next generation of political leaders to move their states beyond the political “straitjackets” of the past
- *Intra-Regional Nexus = Water*, or the degree to which regional economies and societies are vulnerable to fresh water shortages and what conflicts may ensue from such shortages
- *National Nexus = Reengineering*, or the degree to which state governments can reform themselves and reduce their dominant positions in national economies
- *Sub-National Nexus = Islamism*, or the degree to which the twin challenges of youth population bulges and Westernization among youth stresses local social order

S/fearWorld

- *Inter-Regional Nexus = Leviathan*, or the evolution of the role of the U.S. military as regional balancer in key relationships with China and Japan
- *Regional Nexus = China*, or the question of how China fares in its attempt at managing two great simultaneous revolutions (i.e., from command economy to markets and from rural to urban)
- *Intra-Regional Nexus = Rivalries*, or the twin evolutions of the regions two great rivalries (India-Pakistan and Japan-Korea-China)¹³
- *National Nexus = Permeability*, or the question of whether the states in the region can manage the economic reforms necessary to avoid a potentially far worse repeat of the 1997 “Asian Flu”

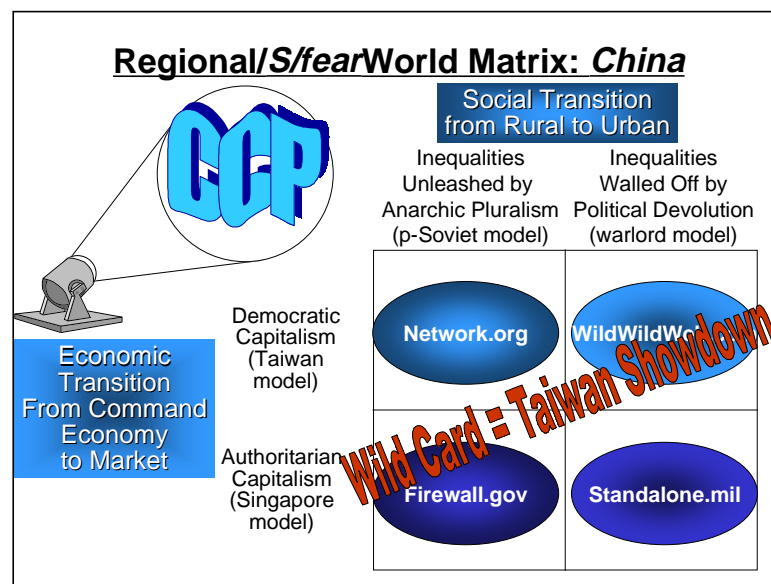
13. Both the so-called India-China and Russia-China rivalries are overblown. There’s competition in both relationships, but not the blood linkages that define a serious rivalry.

- *Sub-National Nexus = Consumerism*, or the development of a large and stable middle class that fosters a similarly stabilizing large domestic market across the region.

Steps VI and VII: Developing 2-by-2 matrices for each regional theme and matching matrix outcomes with global pathways

In this section we break down each theme of global change into a two-by-two matrix (see Figure 13 below) by asking the two most essential questions for uncovering the likely global pathways into which each theme may unfold over time. Next, we decide which global pathway corresponds to which matrix box. Finally, we designate and explain the importance of a single key indicator (“spotlight”) for the matrix’s development over time, and offer four corresponding fictional newspaper “headlines” to express how that indicator might find expression across each of the four matrix outcomes/global pathways.

Figure 13. Example Regional Theme matrix with spotlight



WestWorld

Inter-regional nexus = *Last Resort*

Matrix questions (positive and negative trends listed, respectively)

- U.S. national security policy
 - More little “d” deterrence of military cooperation, global presence and interventions
 - More big “D” deterrence of sanctions, homeland defense and arms races)
- U.S. economic security policy
 - More global architect and financial stabilizer
 - More national architect and financial firewall.

Spotlight

- Complex Humanitarian Events

Pathway matches (with example Spotlight “headline”)

- *Network.org* pathway = More little “d” deterrence in national security + More global economic architect
 - *In Strong Bipartisan Move, Congress Approves Plan to Expand IMF Oversight of Global Economy and Pledges Support for New Method to Calculate Country Dues (Washington Also Reiterates Policy of Early Military Intervention in Failed States; Described as the ‘New Containment’)*
- *WildWildWeb.com* pathway = More big “D” deterrence in national security + More global economic architect
 - *White House Signals Willingness to Bail Out Asian Economies, But Stops Short of Pledging Military Support to Governments Facing Widespread Civil Unrest (Wanting to Keep Involvement on ‘Strictly Business’ Basis, Congress Concurs)*
- *Firewall.gov* pathway = More little “d” deterrence in national security + More national economic architect

— *Monroe Doctrine Revived? While U.S. Military Pulls Back From Europe and Asia, Presence Grows Throughout Latin America (Economic Refugees Seen as Key Driver As U.S. Looks to Manage Its Own 'Backyard' More Carefully)*

- *Standalone.mil* pathway = More big “D” deterrence in national security + More national economic architect

— *Star Wars Shield Turned On After Protests Quelled, But International Outcry Remains (America Turning Back on World During Troubled Economic Times, Say Disgruntled Allies).*

Wild Card

- Serious global economic downturn--probably triggered by oil price shocks stemming from a substantial Mideast conflict--that resurrects inflation in the U.S. economy, for that would immediately strain our collective willingness to respond to economic and political crises around the world by fostering a “let’s-take-care-of-America-first” mentality.

Regional nexus = *New Economy?*

Matrix questions (positive and negative trends listed, respectively)

- Anything.com
 - Drives economic expansion via Internet boom
 - New Economy bubble finally bursts
- U.S. consumer confidence
 - Long-haul perspective remains and investors stick with equities
 - Day trader mentality triggers bull market meltdown.

Spotlight

- Day trading

Pathway matches (with example Spotlight “headline”)

- *Network.org* pathway = Anything.com drives economic expansion via internet boom + U.S. consumer maintains long-haul perspective on equities

- *AOL Tops Microsoft as World's Richest Company, Signalling New Era in New Economy (Internet Boom Entering New, More Stable Phase, Say Market Watchers)*
- *WildWildWeb.com* pathway = Anything.com drives economic expansion via internet boom + Day trader mentality triggers bull market meltdown
 - *Day Trader Firms Trigger Mass Exodus from Internet Stocks; Nifty 50 Lose Almost One-Third On Average (Market Watchers Predict More Volatility Ahead as Day Traders Chase Momentum That Defines Anything.Com's)*
- *Firewall.gov* pathway = New Economy bubble finally bursts + U.S. consumer maintains long-haul perspective on equities
 - *Internet Bubble Turns Into Black Hole As Stampede Out of IT Stocks Continues; Cyclical and Midcaps Benefit (Rush into Bonds Seen as Beginning of End of Record Expansion)*
- *Standalone.mil* pathway = New Economy bubble finally bursts + Day trader mentality triggers bull market meltdown
 - *Dow Plummets For Fourth Day in Row, Triggering Both Circuit Breakers and Fears in Washington (Foreign Investors Fleeing to Euro Instead of Usual Dollar, Alarming Fed).*

Wild Card

- Financial panic caused by rapid growth of Electronic Communication Networks (e.g., Instinet) that allow day traders to hold highly-leveraged intra-day positions via largely unregulated, online market “auction houses” (versus regulated “market makers” such as a Merrill Lynch). ECNs are not required to “buy when there are no buyers” nor “sell when they are no sellers,” making them effective auction houses versus true markets that are required to execute orders to sell or buy. The growth of ECNs creates a de facto new rule set in financial markets that remains largely hidden from public view, but it is one that will inevitably emerge if day trading triggers a panic.

Intra-regional nexus = *All in the Family*

Matrix questions (positive and negative trends listed, respectively)

- North American Free Trade Area
 - Expands in numbers and deepens in cross-border permeability
 - Stagnates in numbers and atrophies in cross-border permeability
- Dollarization of non-U.S. economies
 - Catches on as quasi-economic statehood
 - Seen as latest wave of U.S. economic imperialism.

Spotlight

- Argentina

Pathway matches (with example Spotlight “headline”)

- *Network.org* pathway = NAFTA expands + Dollarization catches on
 - *With Dollar Economy, Argentina Seen As Shoe-In for NAFTA Membership Following Chile (Brazil Seen as Next Logical Addition to Growing NAFTA)*
- *WildWildWeb.com* pathway = NAFTA expands + Dollarization seen as U.S. economic imperialism
 - *South American Nationalists Decry Loss of Argentine’s Sovereignty, Protest NAFTA “Colonization” (Upcoming Referendum on Argentina’s Accession to NAFTA Likely to Foment Civil Unrest)*
- *Firewall.gov* pathway = NAFTA stagnates + Dollarization catches on
 - *Empire on the Cheap? Can States Bypass NAFTA Membership By Dollarizing Their Economies? (Argentina’s Example Intrigues Others in South America, Despite Loss of Monetary Control)*
- *Standalone.mil* pathway = NAFTA stagnates + Dollarization seen as U.S. economic imperialism

- *Argentina, Caught in U.S. Economic Maelstrom, Cracks Down on Use of U.S. Currency in Domestic Transactions (Threat of Nationalization of U.S. Company Assets Resurrects Specter of Peronism).*

Wild Card

- Mexico's economic collapse would call into question NAFTA's southern expansion and discourage overall movement toward a free trade area covering all of the Western Hemisphere.

National nexus = *Generations*

Matrix questions (positive and negative trends listed, respectively)

- Boomers invade Golden Years
 - More private sector response
 - More public sector response
- Processing the Millennium Generation
 - More private sector response
 - More public sector response

Spotlight

- Immigrants

Pathway matches (with example Spotlight "headline")

- *Network.org* pathway = More private-sector elder care + more public-sector schooling
 - *Indiana Governor Forges Historic Compromise on Public School Spending; Credits Innovate Private-Sector Homecare of Elderly For Freeing Up Needed Funds (Smith's Popularity Among 'Squeezed Generation' at Record High)*
- *WildWildWeb.com* pathway = More private-sector elder care + more private-sector schooling
 - *Microsoft Unveils Prototype Living Community Outside Seattle, Signalling Yet Another Expansion of Gates' Vision For Modeling*

U.S. Society (Combination of High-Tech Schools and Assisted Living for Elders Offers Much to Those Who Can Afford This Vision of Future)

- *Firewall.gov* pathway = More public-sector elder care + more public-sector schooling
 - *Congress Passes Education Security Act, Responding to Growing Public Concern Over 'Unemployables' (President Will Sign, Saying America's Security Defined By Getting Most Out of Each Citizen)*
- *Standalone.mil* pathway = More public-sector elder care + more private-sector schooling.
 - *Out With the Old and In With the New: Experts Wonder About Disconnect Between Warehousing of Bankrupt Boomers and 'Nothing Too Good' for Gen-Mille (Youth Culture Seen As Winner in New Economy Focus on 'Doing It 24-7-365')*.

Wild Card

- An “America First” President could create a lot social tension regarding immigration, border issues, and cross-generational burden sharing issues at a point in history when a number of budgetary “train wrecks” are looming regarding Social Security and education.

Sub-national nexus = *Inequalities*

Matrix questions (positive and negative trends listed, respectively)

- Narcotics as bottom-up solution
 - Ghettoized as new life-style drugs supersede traditional narcotics trade
 - Spread as traditional narcotics remain choice of poor
- Privatization of state sector as top-down solution
 - Grows
 - Stalls.

Spotlight

- Drug trade

Pathway matches (with example Spotlight “headline”)

- *Network.org* pathway = Narcotics superseded by new life-style drugs + State sector privatization grows
 - *Colombian Cartels In Shambles, Reflecting Collapse of International Narcotics Trade (Kingpins Translate Drug Wealth into Legitimate Ownership as State Sheds Many Holdings)*
- *WildWildWeb.com* pathway = Narcotics remains choice of poor + State sector privatization grows
 - *Brazil In Race Against Itself: Promoting Land Ownership by Masses to Curtail Temptation to Join Drug Trade (Amazon Basin Becomes New Battleground as Drug Growers Expand Into Area from Peru and Colombia)*
- *Firewall.gov* pathway = Narcotics superseded by new life-style drugs + State sector privatization stalls
 - *Surprise Outcome of Collapsing Drug Trade: Moving Back to a Socialist Agenda? (South American States Hard Pressed to Replace Economic Activity Fostered by Drug Trade, Triggering Backtracking on Privatization of State Industries)*
- *Standalone.mil* pathway = Narcotics remains choice of poor + State sector privatization stalls.
 - *Peru Joins Colombia as Second Narco-Syndicalist State, Leading Some to Wonder About New Domino Theory (State Department Says Drug Kingpins Effectively Control State Government in Peru; U.S. Diplomatic Presence Curtailed).*

Wild Card

- The rise of a new addictive narcotic that proves both wildly popular in the U.S. and highly damaging to individuals, meaning it cannot be kept within the confines of a doctor’s prescription. Good candidate area for this type of drug would be virtual reality programs (i.e., drugs taken in conjunction with VR programs to heighten the sense

of reality. Example of this sort of scenario seen in William Shatner's science fiction series "Tek."

OldWorld

Inter-regional nexus = *Atlantic bond*

Matrix questions (positive and negative trends listed, respectively)

- U.S.-EU relationship
 - Europe remains junior partner
 - Clash of the monetary titans
- NATO evolution
 - NATO expands in members and ambition
 - NATO stagnates in members and ambition

Spotlight

- NATO

Pathway matches (with example Spotlight "headline")

- *Network.org* pathway = Europe remains junior partner + NATO expands
 - *Russia's Accession Into NATO Leadership Circle Now Complete, Moscow Agrees to Membership for Baltic Republics (Day Many Predicted Would Never Come Has Now Arrived)*
- *WildWildWeb.com* pathway = Clash of the monetary titans + NATO stagnates
 - *U.S. Takes Marbles and Heads Home As Trade Dispute Widens in Scope (Real Issue, Say Some, is Rise of Euro as Alternative Reserve Currency in Global Economy)*
- *Firewall.gov* pathway = Clash of the monetary titans + NATO expands
 - *U.S., Protesting NATO Decision to Replace American General With French One, Decides to Reduce Troop Level in Germany*

Even Further (Pentagon Insiders Predict U.S. Troops Gone by End of Year)

- *Standalone.mil* pathway = Europe remains junior partner + NATO stagnates
 - *U.S., Weary of Past Interventions, Refuses Entreaties to Join Balkans Fray Once Again (Too Many of Europe's NATO Promises Broken in Past, Say Hill Leaders).*

Wild Card

- The genuine collapse of political order in Russia would immediately elevate the security issues of former Soviet republics to the forefront of the European security agenda, probably slowing European integration considerably.

Regional nexus = *Old fears*

Matrix questions (positive and negative trends listed, respectively)

- Germany
 - Solid center anchoring East and West
 - Too trapped in past and drifting
- Russia
 - Sees Eastern Europe as gateway to West and stability
 - Sees Eastern Europe as part of unstable “rimland.”

Spotlight

- Poland

Pathway matches (with example Spotlight “headline”)

- *Network.org* pathway = Germany as solid center + Russia sees Eastern Europe as gateway to West
 - *Polish Renaissance Seen as Emblematic of Eastern Europe's Successful Transition to Capitalism and Democracy (Country Seen as Crossroads Where East Meets West to Do Business)*

- *WildWildWeb.com* pathway = Germany too trapped and drifting + Russia sees Eastern Europe as gateway to West
 - *Poland, Repeating Historical Role, Serves as 'Slavic Sherpa' for Western Firms That Do Well in Russia (Polish Firms Seen as Indispensable Partners in Forging Stable Deals with Russian Counterparts)*
- *Firewall.gov* pathway = Germany as solid center + Russia sees Eastern Europe as part of unstable “rimland”
 - *Germany's Lebensraum Goal Now Complete, Russia Fears It's Next on Real Estate List for German Industrialists (Germans Seen as Owning So Much of Eastern Europe as to Achieve Past Historical Goal of Dominance in Region, Alarming Moscow)*
- *Standalone.mil* pathway = Germany too trapped and drifting + Russia sees Eastern Europe as part of unstable “rimland”
 - *History Repeating Itself? Wonder Europeans as Polish Neo-Fascist Party Surprises With Strong Showing in Local Elections (Hard Times Breeds Hard Answers in Country That Hasn't Fared Well in Power Vacuums of Past).*

Wild Card

- An economic downturn of sufficient proportion to trigger a strong right-wing turn in Germany politics would send frightening signals throughout Eastern Europe regarding Berlin's possible attempts to dominate the region, possibly recreating some of the same inter-state dynamics that led to conflict in the 1930s.

Intra-regional nexus = *Ostpolitik*

Matrix questions (positive and negative trends listed, respectively)

- East Central Europe
 - Assimilated successfully by European Union
 - Poor assimilation leaves Europe self-absorbed and fragmented
- Balkans experience
 - Leads to strong EU-NATO match

- Leads to WEU (ESDI) or something equivalent becoming “competitive” vis-a-vis NATO.

Spotlight

- Turkey

Pathway matches (with example Spotlight “headline”)

- *Network.org* pathway = ECE successfully assimilated + Balkans lead to strong EU-NATO match
 - *Turkey’s Entrance into EU Marks End of Long Campaign by Ankara to Join West (Vision of Ataturk Seen as Completed)*
- *WildWildWeb.com* pathway = ECE successfully assimilated + Balkans lead to new Euro security vision
 - *New European Security Arrangement Distances Itself From NATO’s Eastward Expansion, Raising Specter of High-Low Alliance Mix (Eastern NATO Members, Like Turkey, Wonder Aloud About NATO’s Ability to Survive Over Long Haul)*
- *Firewall.gov* pathway = ECE poorly assimilated + Balkans lead to strong EU-NATO match
 - *Ambitions of Last Decade Now Lost, NATO and EU Tend to Their Own, Curtailing Most Plans to Bring East European On Board (Turkey’s Latest Bid to Join EU Ends With Failure, Signalling European Fears of ‘Importing Eastern Instability’)*
- *Standalone.mil* pathway = ECE poorly assimilated + Balkans lead to new Euro security vision
 - *Turkey, in Surprise Move, Announces Plans for Stronger Bilateral Military Ties with Several Neighbors (Tired of NATO’s Intransigence, Ankara Moves to Establish Own Regional Security System).*

Wild Card

- The emergence of an Islamist government in Turkey would threaten stability in the Balkans by increasing the likelihood of cross-civilizational (following Huntington’s thesis) and intra-civilizational

conflict (among Islamic states, with emphasis on an Iran-Turkey rivalry).

National nexus = Deregulation

Matrix questions (positive and negative trends listed, respectively)

- Social safety nets
 - Right-sized for global competitiveness
 - Remain hindrance to global competitiveness
- Individual labor mobility
 - Approaches U.S. ideal
 - Remains limited to small elite.

Spotlight

- European Monetary Unit (EMU)

Pathway matches (with example Spotlight “headline”)

- *Network.org* pathway = Social safety nets are right-sized + Mobility approaches U.S. ideal
 - *EMU’s Introduction Triggered Long Period of Right-Sizing Throughout Europe, But Experts Say Pain Was Worth the Effort (Economic Resurgence Proves Europeans Can Master ‘New Economy’)*
- *WildWildWeb.com* pathway = Social safety nets are right-sized + Mobility remains limited to elite
 - *New Economy Proves Hit In Europe, But Only Among Globe-Hopping Elite (Information Technology Giants Fare Well in Cross-Atlantic Alliances, But Many Smaller Firms Left Behind in Increasingly Harsh Competition)*
- *Firewall.gov* pathway = Social safety nets are hindrance to global competitiveness + Mobility approaches U.S. ideal
 - *GATT Talks Stalled As European Powers Continue Hard Line on Food and Mass Media Imports (Unintended Consequence of EMU Success is that United Europe Wants to Remain European)*

- *Standalone.mil* pathway = Social safety nets are hindrance to global competitiveness + Mobility limited to small elite
 - *Costs of Propping Up EMU Against Dollar Straining Cooperation Within EU, Leading Some States To Abandon Stringent Inflation Standards (EU Leaders Pledge No Backing Away from EMU, But Changes Inevitable, Say Observers).*

Wild Card

- The emergence of the EMU as the premier global reserve currency would greatly threaten the U.S.'s ability to run federal government deficits or continue to finance its huge federal debt with the help of foreign investors. This, in turn, would threaten America's ability to maintain a strong defense.

Sub-national nexus = *Balkanization*

Matrix questions (positive and negative trends listed, respectively)

- Nation-state devolution in response to integration trends
 - UK model of local sovereignty reigns
 - Yugoslavian model of conflict resolution reigns
- *Camp of the Saints* (French novel about Europe being overrun by non-white economic refugees from abroad)
 - Immigration is orderly and absorbable
 - Immigration overwhelms and triggers xenophobic political movements.

Spotlight

- Nations Without States

Pathway matches (with example Spotlight "headline")

- *Network.org* pathway = UK sovereignty model reigns + immigration absorbable
 - *Accession of Basque to Autonomous Unit Status Within EU Signals New Era for Spain, Ending Decades of Simmering Conflict*

with Seccessionist Movement (Following UK Example, Madrid Decides to 'Let It Be')

- *WildWildWeb.com* pathway = Yugoslavian conflict resolution model reigns + immigration absorbable
 - *Third Italian City Joins Free-Wheeling Northern League, Causing Latest Coalition Government to Fall ('Italy is Coming Apart at the Seams,' Decries PM, But No One Seems to Care)*
- *Firewall.gov* pathway = UK sovereignty model reigns + immigration overwhelms
 - *New Berlin Walls Rising All Over Central Europe As Cities Dividing Into 'Natives' and 'Invaders' (New Divides Marked by Wealth, Skin Color, and Walls with Motion Detectors)*
- *Standalone.mil* pathway = Yugoslavian conflict resolution model reigns + immigration overwhelms
 - *New Breed of Eastern German Skin Heads Target Immigrants in Systematic Fashion, Leading Some to Cry 'Ethnic Cleansing' (There Are Many Places in Former East Germany Where Dark-Skinned People Dare Not Live).*

Wild Card

- A massive uptick in foreigners seeking the equivalent of economic asylum in Europe would strain political systems there, especially as EU countries seek to harmonize social policies involving the free movement of people across borders.

CareWorld

Inter-regional nexus = *Capital flows*

Matrix questions (positive and negative trends listed, respectively)

- OECD Official Development Aid (ODA)
 - African states become West's biggest aid recipients
 - Remains a band-aid for survival economy

- Globalization
 - Opens Africa up to market economy opportunities
 - Largely bypasses Africa other than tapping into nature economy

Spotlight

- Foreign direct investment (FDI)

Pathway matches (with example Spotlight “headline”)

- *Network.org* pathway = African states become biggest ODA recipients + Globalization opens Africa up to market economy opportunities
 - *Ronald McDonald, I Presume? Fast Food Giant Goes Into Africa in Big Way, Signalling Emergence of Urban Middle Class With Money to Spend (Citing Sustained Growth of Several Years, Restaurant Chain Finally Takes the Plunge)*
- *WildWildWeb.com* pathway = ODA remains band-aid for survival economy + Globalization opens Africa up to market economy opportunities
 - *Foreign Investors Flock to Africa, Bringing Promise of New Economy Opportunities, But Who’s Minding the Political ‘Store?’ (Poor and Untrained Left Behind (As Always) in Latest African Gold Rush, Calling Into Question Long Term Political Stability of Recent Economic Gains)*
- *Firewall.gov* pathway = African states become biggest ODA recipients + Globalization largely bypasses Africa other than tapping into nature economy
 - *Another Rush to Colonize Africa? Great Powers Offer Aid But Seem More Interested in Willing Political Loyalty (Worries Over Access to Critical Minerals Leads Great Powers to Act Like Cold War Superpowers, With Africa the Likely Loser Over Long Run)*
- *Standalone.mil* pathway = ODA remains band-aid for survival economy + Globalization largely bypasses Africa other than tapping into nature economy

— *African States Sinking Deeper Into Debt Over Chronic HIV Crisis as ‘Sick Continent’ Continues Economic Decline (New Economy Nowhere to Be Found in African Urban Centers).*

Wild Card

- A serious global economic downturn would just about kill Africa because it's the last on anyone's list to receive foreign direct investment, meaning it's the place that receives such funds only after all good alternatives in the global economy are saturated. Thus, during any global economic downturn, it is one of the first places from which investors pull out.

Regional nexus = *Re/Decolonialization*

Matrix questions (positive and negative trends listed, respectively)

- Next generation of leaders
 - Succeed in creating African “tigers”
 - Fail to extract sufficient resources to fund strong states
- Warlords
 - Targeted by West as war criminals
 - Strip countries bare through economics of ethnic conflict

Spotlight

- Military companies

Pathway matches (with example Spotlight “headline”)

- *Network.org* pathway = Next leaders succeed in creating “tigers” + Warlords targeted by West as war criminals
 - *Col. Smith Moves Burundi Into 21st Century as Data Processing Center of Choice for European Multinationals (Visionary Leader is Creating Virtual Tiger in the Heart of Africa)*
- *WildWildWeb.com* pathway = Next leaders succeed in creating “tigers” + Warlords strip countries bare through economics of ethnic conflict

- *Kenya's Fragile New Economy Threatened by Refugee Flow From Neighboring Civil War; President Orders Borders Sealed (Private Military Firms Hired by Foreign Multinationals to Augment State Forces Dealing with Instability Along Western Border)*
- *Firewall.gov* pathway = Next leaders fail to extract sufficient resources to fund strong states + Warlords targeted by West as war criminals
 - *France No Longer Only Great Power Operating 'Foreign Legion' on Dark Continent, As Funded Mercenaries Increasingly Play Power Broker in Dysfunctional African States (Rwanda's Rebel Government Latest to Fall to Well-Financed Private Firm Coup)*
- *Standalone.mil* pathway = Next leaders fail to extract sufficient resources to fund strong states + Warlords strip countries bare through economics of ethnic conflict
 - *Congo Wars, Episode IV: The Hacking Menace (Under Guise of Rebel Movements, Warlords Pillage Carrion State For All It's Worth, Cutting Off Limbs of Any Who Oppose Them).*

Wild Card

- An example of private-sector genocide (mass killings or ethnic cleansing promulgated by military companies working on the behalf of African governments) might be enough to appall the Great Powers to the point where serious coordinated efforts are made to stem the rising tide of civil strife in Africa.

Intra-regional nexus = *Pillars*

Matrix questions (positive and negative trends listed, respectively)

- Republic of South Africa
 - Becomes globally competitive conduit of FDI for SADCC members
 - Remains defined as exporter of raw materials

- Africa's "Great War"
 - Produces "Alpha State" in Central Africa
 - Dismembers Congo completely.

Spotlight

- Regional hegemons

Pathway matches (with example Spotlight "headline")

- *Network.org* pathway = RSA becomes global competitor and FDI conduit + Great war produces "alpha state"
 - *Kinshasa and Johannesburg Forge New Alliance Aimed at Promoting Stability in Central and Southern Africa (Mutual Aid Pledge Includes Expressed Willingness to Employ Peacekeeping Troops in Each Region's Conflicts)*
- *WildWildWeb.com* pathway = RSA becomes global competitor and FDI conduit + Great war dismembers Congo completely
 - *SADCC Members, With South Africa in Lead, Erect Virtual Berlin Wall Along Northern Border with Congo 'Black Hole' (Central Africa War Sucking In Men and Resources and Southern African States Determined Not to Be Drawn Into Neverending Conflict)*
- *Firewall.gov* pathway = RSA remains defined as exporter of raw materials + Great war produces "alpha state"
 - *Africa's Middle Kingdom Emerges: Reconstituted Congolese State Aims To Be New Leader of Black Africa, Emphasizing the 'African Path' of Development (But Since Both State and Region Dependent on Mineral Exports, Nature of 'Path' Strikes Development Workers as Old Wine in New Bottles)*
- *Standalone.mil* pathway = RSA remains defined as exporter of raw materials + Great war dismembers Congo completely
- *Who Speaks for Africa Anyway? With Major Countries Falling Apart At the Seams, Private Corporations Increasingly Do the Talking As Far As African Diplomacy is Concerned (Absolute Failure of*

Government in Key States Leaves Continent Without Official Voice, Just Slogans and Trademarks).

Wild Card

The emergence of a winning force in Congo that not only reunifies the country but does so on the basis on a revived “Africa-only” agenda or ideology could introduce a very dangerous note in African politics just as many states and leaders are moving away from Africa-centric views and seeking a niche in the global, IT-driven New Economy.

National nexus = *Virtual states*

Matrix questions (positive and negative trends listed, respectively)

- Ethnic rivalries
 - Balance of power codified in political arrangements
 - Based in serious economic imbalance and unaddressed by politics
- Governments’ territorial control
 - Right up to and including borders
 - Limited to capital region.

Spotlight

- Border conflicts

Pathway matches (with example Spotlight “headline”)

- *Network.org* pathway = Balance of power codified in political arrangements + Governments’ territorial control right up to and including borders
 - *Africa Passes Amazing Milestone: No Conflicts During Year That Surpass 1,000 Deaths (First Time In Modern History That Continent Survives Year Without Major Cross-Border Conflict)*
- *WildWildWeb.com* pathway = Ethnic rivalries based in serious economic imbalance and unaddressed by politics + Governments’ territorial control limited to capital region

- *Africa Slowly Returning to Colonial Era of Company-Run Towns as Political Control of Territories Evaporates (Private Corporations Increasingly Call the Shots in Disputed Border Regions Where Neither Side Can)*
- *Firewall.gov* pathway = Ethnic rivalries based in serious economic imbalance and unaddressed by politics + Governments' territorial control right up to and including borders
 - *The Second Coming of Africa's Strongmen Seen in Rise of Kimbalu in Uganda; New Leader Promises 'Firm Hand, Firm Borders' (Steering Clear of Regional Adventurism, New President Vows To Rid Country of 'Western Poisons')*
- *Standalone.mil* pathway = Balance of power codified in political arrangements + Governments' territorial control limited to capital region
 - *Back to the Future in Africa: Demise of State Governments Seen in Movement of Several Countries Toward Tribal Self-Government (Giving Up on Western Model of Political Organization, Several Central African Countries Are Peacefully Dismembering Themselves).*

Wild Card

- The emergence of Africa's first "virtual tiger" (meaning an economic center of gravity based on skill sets successfully marketed to the global economy vice raw materials) would break the mental model that says Africa is being left behind by the global, IT-driven New Economy. Early example is phone sex industry currently pursued by several West African states.

Sub-national nexus = AIDS

Matrix questions (positive and negative trends listed, respectively)

- HIV infection rates
 - Arrested
 - "Black Death Plus" due to emergence of drug-resistant strains

- States' response to care burden
 - Strong efforts/help from West
 - Swamped/aid from West with many strings.

Spotlight

- Life expectancy of newborns

Pathway matches (with example Spotlight "headline")

- *Network.org* pathway = HIV infection rates arrested + Strong states' response to care burden with help from West
 - *Vaccination Drive Across African Continent Recalls America's Effort with Polio in 1950s; Every Child Targeted in Comprehensive Sweep (Unprecedented Cooperation Among African Countries Seen as Positive Sign That Crisis Now Under Control)*
- *WildWildWeb.com* pathway = "Black Death plus" + Strong states' response to care burden with help from West
 - *New HIV-G Strain Described as Worst Global AIDS Threat Yet; Africa, As Always, Is Ground Zero (Despite Global Response, Africans Born Today Face Likely Life Span of Less than 30 Years)*
- *Firewall.gov* pathway = HIV infection rates arrested + States swamped and Western aid comes with many strings
 - *'AIDS Gulag' is Rallying Cry of African Social Activists Fed Up With Western Response to Continent's HIV Crisis; Mass Demonstrations Planned by Africa ACT-UP Chapters ('HIV Concentration Camps' Are No Way to Deal With Disease, Claims ACT-UP Leadership)*
- *Standalone.mil* pathway = "Black Death plus" + States swamped and Western aid comes with many strings
 - *EU Bans All Tourist Travel To Fifteen Sub-Saharan Africa Nations In Response to Rise of HIV-J Strain Among Local Populace (Doctors Predict Most Africans Born Today Will Not Reach Adulthood; EU Says Self-Preservation Must Come First).*

Wild Card

- The emergence of a cheap HIV vaccine would go the farthest in altering the presently dim investment situation, which naturally shies away from a labor pool where upwards of 1 out of 4 adults are HIV positive and facing a shortened lifetime.

OilWorld

Inter-regional nexus = *Co-dependency*

Matrix questions (positive and negative trends listed, respectively)

- Global dependency on Mideast oil
 - Balanced by Caspian Basin/alternative fuels
 - Huge/increasingly unmet due to skyrocketing demand
- National economies in region
 - Diversify beyond energy exports
 - Remain largely unidimensional.

Spotlight

- Saudi Arabia

Pathway matches (with example Spotlight “headline”)

- *Network.org* pathway = Global dependency increases + Mideast economies diversify beyond oil
 - *This Time Around, Riyadh Plans For a Different Future; Rising Oil Profits Plowed Into Human Resources Development, Not Luxuries (Looking To Diversify Economy, Government Revamps Education System)*
- *WildWildWeb.com* pathway = Global dependency balanced + Mideast economies diversify beyond oil
 - *Under the Gun Economically, Riyadh Moves to Cut Back Government Subsidies Yet Again, Triggering A War of Words From an Increasingly Strained Middle Class (Caught Between Need to*

Economize and Restructure the Economy, Average Saudis Fear the End of Oil Wealth Era)

- *Firewall.gov* pathway = Global dependency increases + Mideast economies remain largely unidimensional
 - *A Moment Lost? Saudi Political Reformers Fear Revived Global Oil Prices Dooms Country to Status as 'Backward, Backwater' Society (Renewed Oil Profits Lets Riyadh Off Hook on Social Reform Agenda, But Does That Leave Society Behind World in New Economy Evolution?)*
- *Standalone.mil* pathway = Global dependency balanced + Mideast economies remain largely unidimensional
 - *Riyadh Faces Catch-22: Economy Must Change Now That Oil Profits Down, But Lack of Resources is Biggest Obstacle (Experts Fear Saudi Arabia Will Simply Fall Off Global Economic Map in Coming Years).*

Wild Card

- If OPEC were able to force another series of oil-price shocks as it had in the 1970s on two occasions (either by themselves for internal reasons or to take advantage of some global economic disruption), it could well trigger a strong movement by advanced economies to dramatically reduce their dependency on Mideast oil by increasingly efficient use of oil in cars and industry and by pursuing alternative sources more vigorously.

Regional nexus = Next Generation

Matrix questions (positive and negative trends listed, respectively)

- Next Arab leaders
 - The emergence of Arab “Gorbachevs”
 - Chips off the old block
- Israel
 - Goes post-Zionist; becomes “normal” state
 - Dream of “Greater Israel” remains.

Spotlight

- Successions

Pathway matches (with example Spotlight “headline”)

- *Network.org* pathway = Next Arab leaders are chips off the old block + Israel becomes “normal” state
 - *Israel Still An Island in Mideast, But Now For Different Reasons (New PM Directs Country to ‘Virtual Tiger’ Status in Global Economy, While New Arab Leaders Refuse To Do More Than Tinker With Increasingly Antiquated Economies)*
- *WildWildWeb.com* pathway = Arab “Gorbachevs” emerge + Israel becomes “normal” state
 - *Rush to Westernization By New Generation of Arab Leaders Seen as Promising and Perilous (Social Unrest Inevitable As Reformist Leaders Seek to Modify Koran to Demands of New Economy)*
- *Firewall.gov* pathway = Arab “Gorbachevs” emerge + Dream of “Greater Israel” remains
 - *New Generation of Arab Leaders Forging Trade Alliance Designed to Help Economies Diversify, Become Less Dependent on Western Aid and Technology (Continuing Strife with U.S. Over Israel Leads New Leaders to Look Inward for New Era of Economic Development)*
- *Standalone.mil* pathway = Next Arab leaders are chips off the old block + Dream of “Greater Israel” remains
 - *The More The World Changes, The More Things Stay the Same in Crisis-Prone Mideast, As Recent Social Crackdown Demonstrates in Egypt (Arab Societies Seen as Falling Increasingly Behind in Global Economy Built on Knowledge More Than Wealth, Meanwhile Israel Can’t Shed It’s Defense-Heavy Economy).*

Wild Card

- The Mideast has a long history of seeing reformist leaders cut down by assassins (e.g., Sadat, Peres, multiple attempts on now-deceased King Hussein and Hosni Mubarak). Arab “Gorbachevs” will inevitably be targeted, and successful attempts can derail a country’s reformist pathway for a significant length of time.

Intra-regional nexus = *Water*

Matrix questions (positive and negative trends listed, respectively)

- Emerging vulnerability
 - Not too bad
 - Severe
- Stress points
 - Internal stress only; adjustments proceed
 - External stress; conflicts ensue among states.

Spotlight

- Turkish-Israeli relationship

Pathway matches (with example Spotlight “headline”)

- *Network.org* pathway = Emerging vulnerability not too bad + Stress points are internal only and manageable
 - *Turkey, Iraq, and Syria Announce New Water Accord to Govern Flow of Rivers, Years of Tension Over Issue Ended By Israeli-Brokered Deal (Water Resources of Historic Rivers to Be Shared in Complex Scheme That Spreads Cost Over Three Economies)*
- *WildWildWeb.com* pathway = Emerging vulnerability severe + Stress points are internal only and manageable
 - *To Garner Israeli Economic Cooperation, Syria Tones Down Conflict with Turkey Over Water Rights With Euphrates (Bill Gates and George Soros Unlikely Brokers in Deal With Israel’s Wadi Valley IT Firms to Start Up Data Processing Center Outside Damascus)*

- *Firewall.gov* pathway = Emerging vulnerability not too bad + Stress points are external and conflict ensues
 - *New Driver of Arab Unity--Water, Water Everywhere, But Too Little Share With Us! (Water Tensions Redefine Political Map as 'Land for Peace' Replaced by 'Water for Peace')*
- *Standalone.mil* pathway = Emerging vulnerability severe + Stress points are external and conflict ensues
 - *In Stunning Reversal of History, Kurds Now Sought After By All Sides in Conflict As Allies in Control Over Key Rivers (Syria, Iraq, Iran, and Turkey with Ally Israel All Locked in Competition, With Kurdistan The Likely Powder Keg).*

Wild Card

- A technological breakthrough in desalinization of sea water (meaning a tremendous reduction in cost and infrastructure outlay) would go a long way to solving this key development restraint that will largely be focused on North Africa and Southwest Asia over the next 3 to 4 decades.

National nexus = *Reengineering*

Matrix questions (positive and negative trends listed, respectively)

- State governments
 - Reengineer; unleash economic potential of people
 - Remain bloated and corrupt; innovation and entrepreneurship shackled
- State sector of economies
 - Diminish
 - Resist downsizing.

Spotlight

- Egypt

Pathway matches (with example Spotlight “headline”)

- *Network.org* pathway = State governments reengineer + State sectors diminish
 - *Disney and Viacom Announce Joint Venture With Egyptian Ministry of Antiquities to Revamp National Tourism Industry (Unprecedented Deal Allows Western Corporations State-Like Role in Operating Egypt’s Most Important Industry; Huge Investment Flow To Follow)*
- *WildWildWeb.com* pathway = State governments reengineer + State sectors resist downsizing
 - *Egyptian Mobsters Stage Another Massive Shoot-out in Cairo; Dozens of State Workers Killed (Egypt’s ‘New Path’ Reforms Generating Private-Sector Justice as State Bureaucracy Struggles To Maintain Control)*
- *Firewall.gov* pathway = State governments remain bloated and corrupt + State sectors resist downsizing
 - *New Egyptian President’s Economic Prescription Recalls FDR’s ‘New Deal’; State Tackles High Unemployment Through Massive Public Works Programs (Combination of Deficit Spending and Bloated State Sector Leaves Economy Growing At Snail’s Pace)*
- *Standalone.mil* pathway = State governments remain bloated + State sectors diminish
 - *Facing Large Youth Bulge and Too Few Jobs, Egypt Turns to Military Service as Answer (Faring Poorly in Global Economy, Government Vows To Take Care of Its Own; Warns Against Foreign Meddling).*

Wild Card

- The biggest hold-up for foreign direct investment in the Middle East is the lack of a sufficiently robust legal system and a clear economic rule set that reduces state corruption to a tolerable level and allows for long-term confidence regarding the recouping of investment through profits. The biggest short-term variable of change, therefore,

would be a concerted effort by state governments to enact legal reforms designed to bolster foreign investor confidence. So long as the Middle East remains a relatively difficult place for Western corporations to do business, the state sector will continue to fill the resulting investment vacuum.

Sub-national nexus = *Islamism*

Matrix questions (positive and negative trends listed, respectively)

- Islamist movements
 - More political in tactics
 - More militant and extra-political in tactics
- Youth “bulges”
 - Westernized
 - Radicalized.

Spotlight

- Iran

Pathway matches (with example Spotlight “headline”)

- *Network.org* pathway = Islamist movements more political + Youth bulge more westernized
 - *Reformist Candidate Wins Iran’s Presidency in Stunning Election; Youth Looking For More Open Society Seen As Decisive Swing Vote (Ayatollah Acknowledges Strength of Victory, Says Care Must Be Taken to Preserve Gains of Revolution)*
- *WildWildWeb.com* pathway = Islamist movements more militant + Youth bulge more westernized
 - *Election Victory of Reformist Candidate Triggers Widespread Clashes Throughout Iran; Right-Wing Demonstrations by Aging Revolutionaries Met With Violence By Pro-Reform Youth (Revolutionary Generation Will Not Go Quietly, Say Experts, So More Conflict Likely)*

- *Firewall.gov* pathway = Islamist movements more political + Youth bulge more radicalized
 - *Large Shipment of U.S. Made Computers Destroyed in Teheran by Rampaging Youth Following Anti-American Demonstration To Mark Revolution Anniversary (Technology Targeted As Sign of Unwanted Connectivity to West)*
- *Standalone.mil* pathway = Islamist movements more militant + Youth bulge more radicalized
 - *Iran Refuses All Relief Efforts and Supplies From West; Earthquake Death Toll Now Reaches 50,000 (Refusal Indicates Depth of Iran's Withdrawal From World Following Collapse of Oil Market).*

Wild Card

- If Iran were to experience a Chernobyl-like disaster that called into question the legitimacy of the ayatollah-dominated political system, a strong opening could occur for a moderate or reformist leader to emerge and steer the country down a new path that opens it toward the West.

S/fearWorld

Inter-regional nexus = *Leviathan*

Matrix questions (positive and negative trends listed, respectively)

- Beijing-Washington relations
 - Competitive (de Gaulle's France)
 - Antagonistic (pre-WWI Germany)
- Tokyo-Washington relations
 - Strong (Japan that can say "yes")
 - Weakening (Japan that can say "no")

Spotlight

- Theater Ballistic Missile Defense

Pathway matches (with example Spotlight “headline”)

- *Network.org* pathway = Beijing competitive + Tokyo strong
 - *U.S. Reaches Agreement With Beijing About Limiting Deployment of Missile Defense-Bearing Ships in Region (U.S. Move to Strengthen Japan’s Defense Against North Korean Threat Had Strained Bilateral Ties)*
- *WildWildWeb.com* pathway = Beijing competitive + Tokyo weak
 - *Japan Says No to U.S. Offer of Shield Against North Korean Missile Threat; China Cheers Decision (‘Asian Security Must Be Created By Asian Powers,’ Declares PRC Foreign Minister)*
- *Firewall.gov* pathway = Beijing antagonistic + Tokyo strong
 - *Japan Diet Approves Controversial Military Agreement with U.S. on Regional Missile Defense Arrangements (China Decries Move, Warns Against Deployment Near Taiwan)*
- *Standalone.mil* pathway = Beijing antagonistic + Tokyo weak
 - *U.S. Activates First Segment of New Missile Shield Along Pacific Coast, Citing Continuing Threat of North Korea and ‘Others’ (Japan Refuses Shield While China Issues New Threats Against Taiwan; White House Says ‘America Must Protect Self First’).*

Wild Card

- How North Korea chooses to proceed with its ongoing missile development program will go a long way in deciding the U.S. development of theater ballistic missile defense in Asia, which, in turn, could prove a linchpin security issue for U.S. military relations with both China and Japan. The biggest near-term surprise would be some set of conditions coming about that convinces North Korea to abandon its missile program, thus removing a key security driver for the region as a whole.

Regional nexus = *China*

Matrix questions (positive and negative trends listed, respectively)

- Economic transition from command economy to market
 - Democratic capitalism (Taiwan model)
 - Authoritarian capitalism (Singapore model)
- Social transition from rural to urban
 - Inequalities unleashed by anarchic pluralism (post-Soviet model)
 - Inequalities walled off by political devolution (China warlord model)

Spotlight

- Chinese Communist Party

Pathway matches (with example Spotlight “headline”)

- *Network.org* pathway = Democratic capitalism + Inequalities unleashed by anarchic pluralism
 - *Several Hundred Thousand Chinese Farmers Demonstrate in Beijing Against Falling Prices, Capital City Brought to Standstill (Farmers Now Bulk of Dwindling Communist Party Membership; Protest Seen as Last Stand of Old-Line Stalwarts)*
- *WildWildWeb.com* pathway = Democratic capitalism + Inequalities walled off by political devolution
 - *In Stunning Move, Three Southeast Chinese Provinces Announce They’ll No Longer Pay So-Called Equal Development Tax to Communist Leadership (Civil Unrest Results in Manchuria and Sinkiang; Beijing Forced to Rely Solely on Local Forces to Quell Disturbances)*
- *Firewall.gov* pathway = Authoritarian capitalism + Inequalities unleashed by anarchic pluralism
 - *China Shuts Down Another Thousand State Firms, Leading to Labor Protests Around Country (Tough Measures to Revive*

Economy Seen as Death Knell for Communist Party Whose Say in Beijing's Decisions No Longer Evident)

- *Standalone.mil* pathway = Authoritarian capitalism + Inequalities walled off by political devolution
 - *Communist China Shrinking Fast as Provinces Increasingly Policing Own Disturbances, Forging Own Economic Answers to Hard Times (Communist Party Only Significant in Interior Provinces as Rest Go Their Own Way).*

Wild Card

- As private-sector China continues to advance economically and public-sector China (to include the Communist Party) finds itself increasingly left behind, the greatest temptation for Beijing's leadership will be to utilize some long-standing political-military dispute as a way to demonstrate its continued relevancy as a force for national leadership of the country as a whole. Taiwan offers the biggest payoff in this regard, raising the specter of a dramatic showdown triggered by the Communist Party's fear that it is losing its grip of power.

Intra-regional nexus = *Rivalries*

Matrix questions (positive and negative trends listed, respectively)

- Japan/Korea(s)/China
 - United Korea plays *France* to China's *Germany*; Japan as *Great Britain* and U.S. orchestrates the cooperation (post-WWII Europe model)
 - Korea(s) as swing vote while Japan and China sumo wrestle for regional dominance and U.S. a distant observer (pre-WWI Europe model)
- India/Pakistan
 - MAD-like stability pushes internal balancing (i.e., arms races) for the better
 - Strategic instability pushes external balancing (i.e., direct conflicts) for the worse

Spotlight

- Arms control treaties

Pathway matches (with example Spotlight “headline”)

- *Network.org* pathway = Post-WWII Europe great power model (Japan/Korea(s)/China) + MAD-like stability pushes internal balancing (India/Pakistan)
 - *U.S. Joins Asian Great Powers in Signing ‘Open Skies’ Military Accord, Paving Way for New Era in Regional Arms Control (Treaty Will Dramatically Boost Transparency Regarding Missiles and Troops)*
- *WildWildWeb.com* pathway = Pre-WWI Europe great power model (Japan/Korea(s)/China) + MAD-like stability pushes internal balancing (India/Pakistan)
 - *As North Korea Builds Missiles, China and Japan Quietly Move toward Fielding Own Missile Defense Shields (U.S. Shield Considered Insufficient by Both States, Leading to Unprecedented Arms Race in Asia)*
- *Firewall* pathway = Post-WWII Europe great power model (Japan/Korea(s)/China) + Strategic instability pushes external balancing (India/Pakistan)
 - *China and Japan Refuse to Join U.S. and Russia in Round Table Talks on South Asia Missile Situation; Washington Push for ‘Six Powers’ Strategic Stability Accord To Include Pakistan and India Likely to Fail (White House Fears Growing Kashmir Conflict Will Trigger Major Land War in Asia)*
- *Firewall* pathway = Pre-WWI Europe great power model (Japan/Korea(s)/China) + Strategic instability pushes external balancing (India/Pakistan)
 - *India Expands Foothold in Kashmir, Pakistan Troops in Retreat (China Believed to Be Massing Troops on Border, Raising Fears of Expanded Regional War; U.S. Calls for Calm But Military Moves Not Expected).*

Wild Card

- The reunification of Korea would dramatically alter the nature of the continuing Japan-China-Korea rivalry by simultaneously removing its most unpredictable element (North Korea) while creating a new regional power (united Korea). Also, U.S. troops in South Korea would probably leave within a year or two of reunification, altering the U.S. security posture there greatly.

National nexus = *Permeability*

Matrix questions (positive and negative trends listed, respectively)

- The “Class of 1997-98”
 - “Graduates” shed bad habits of economic “youth”; engage in more transparency and rules
 - “Drop Outs” occur with next economic crisis; engage in protectionism and hide behind “Asian values”
- Faces of Globalism in Asia¹⁴
 - More outreach-oriented with “Davos” (i.e., international finance) and “Faculty Club” (i.e., transnational cultural elites) style interactions
 - More inward-oriented in reaction to the onslaught of “McDonald’s” (i.e., consumer culture) and Evangelical Protestantism (i.e., Christian missionaries) style interactions from the West

Spotlight

- Malaysia and Singapore

Pathway matches (with example Spotlight “headline”)

- *Network.org* pathway = 1997-98 “graduates” shed bad habits of economic “youth” + Faces of globalism favor “Davos” and “Faculty Club” style interactions

14. See Peter L. Berger, “Four Faces of Global Culture,” *The National Interest*, Fall 1997, pp. 23-29.

- *Singapore Hosts GATT Talks, Marking New Era in Asian Economic Leadership (Asia Sub-Group Expected to Play Leading Role in Forging Global Compromise on Agriculture and Intellectual Property)*
- *WildWildWeb.com* pathway = 1997-98 “graduates” shed bad habits of economic “youth” + Faces of globalism favor “McDonald’s” and Evangelical Protestantism style interactions
 - *As Asia Opens Up to U.S. Style Capitalism, New Cultural Battles Are Ignited Over Food and Religion (Malaysian Government Split Over Which Threat is Greater: Fast Food or Fast-Talking Preachers)*
- *Firewall.gov* pathway = “Drop outs” occur with next economic crisis + Faces of globalism favor “Davos” and “Faculty Club” style interactions
 - *Malaysia, Rejecting IMF Calls for Economic Reform, Ejects Moody’s Inspectors (Financial Crisis Drives State to Shut Down Foreign Currency Operations of Banks; “Temporary Measures” Likely To Last Through Summer)*
- *Standalone.mil* pathway = “Drop outs” occur with next economic crisis + Faces of globalism favor “McDonald’s” and Evangelical Protestantism style interactions
 - *Singapore Bans Evangelical Christian Groups, Arrests U.S. Leaders of Several Missions (White House Responds With Economic Sanctions and Threatens Worse If Promised Trials Occur).*

Wild Card

- A financial meltdown in China, probably triggered by massive banking failures, represents the greatest near-term threat to the region’s overall economic health. China played the role of steady bulwark in the 1997 “Asian Flu” and its inability to do the same in the next economic crisis could prove destabilizing to the region as a whole.

Sub-national nexus = Consumerism

Matrix questions (positive and negative trends listed, respectively)

- Political “middle” emerges

- Demanding more from governments, which become more responsive
- Only to be co-opted by ideology or cowed by authority
- Stabilizing domestic markets
 - Relax focus on export-driven growth
 - Remain underdeveloped.

Spotlight

- Private home ownership

Pathway matches (with example Spotlight “headline”)

- *Network.org* pathway = Governments more responsive + domestic markets emerge
 - *IKEA Announces Dramatic Boost in 4th Quarter Profits, Cites Expanded Role of Asian Operations (Rapid Growth of China Market Drives Swedish Company’s Plans for Future Global Expansion)*
- *WildWildWeb.com* pathway = Governments more responsive + domestic markets remain underdeveloped
 - *Haves vs. Have-Nots Gap Seen as Driver of Recent Political Unrest in Asia; ‘Middle Class’ Lacks Same Standard of Living as Counterparts in U.S. and Europe (IMF Encourages More Focus on Private Housing and Consumer Spending as Prerequisite For Continued Cooperation on Loans)*
- *Firewall.gov* pathway = Political “middle” co-opted by ideology/ cowed by authority + domestic markets emerge
 - *Beijing, Pushing a ‘Made in China’ Campaign, Reverses Long Focus on Exports in Favor of Domestic Market Development (IMF Warns About ‘Irrational Protectionism,’ But Other Asian Economies Expected to Follow Example As Regional Crisis Drags On)*
- *Standalone.mil* pathway = Political “middle” co-opted by ideology/ cowed by authority + domestic markets remain underdeveloped

— *Pulling Out of WTO, China Slaps New Tariffs on U.S. Consumer Imports, Escalating War of Words with Washington Over Economic Crisis (Loss of Credibility for WTO Seen as Huge, Band Wagoning Effect Feared for Entire Region).*

Wild Card

- The next case of “Asian Flu” could go far in forcing economic reforms that, depending on your point of view, either were or were not pursued in sufficient response to the events of 1997. In effect, Asian countries, by temporizing on key economic reforms designed to boost transparency and the sort of rule-making that favors domestic spending, may be setting themselves up for a bigger “fall” down the road (i.e., the prevention of many small forest fires often begets a very large forest fire down the road).

Step VIII: Establishing probable pathway-sequences for the “worlds-within-worlds”

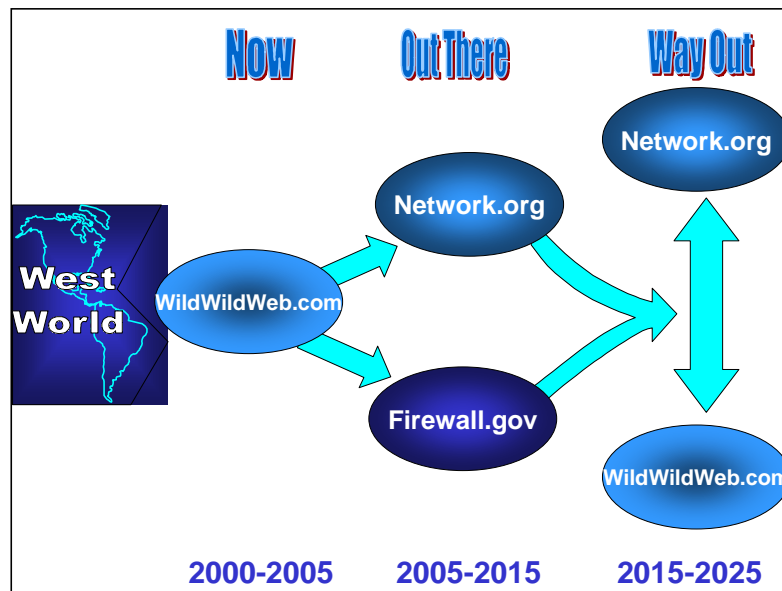
WestWorld

Figure 14 below presents our summary judgment regarding *WestWorld*’s current global pathway (“now” defined as extending through 2005), its possible pathways “out there” (defined as the period 2005-2015), and its possible pathways “way out” in the time period of 2015-2025.

As the chart portrays, our collective judgment for *WestWorld*’s “Now” diagnosis is the *WildWildWeb.com* pathway. This region is undergoing a tremendous pace of economic and social change as a result of the Information Revolution, and while things are holding up well now, few would argue with the judgment that change is outpacing our ability for rule-making (the classic being the notion that one year in the life of the Internet is the equivalent of five years for the rest of society, and we simply can’t legislate that fast, by definition).

Our “Out There” prognosis for *WestWorld* is that the current situation will either settle down into the *Network.org* pathway (as *WestWorld*, and especially the United States grows more comfortable with the rapid pace of change) or possibly the *Firewall.gov* pathway (i.e., the United States with-

Figure 14. Probable global pathways for *WestWorld*



drawing a bit from the world to concentrate on domestic issues and change—especially as the Boomer Generation hits retirement age in great numbers).

Our “Way Out” prognosis for *WestWorld* is that it will either settle into a long-term and stable *Network.org* pathway (absorbing the Information Revolution in its stride and then tackling the BioGen Revolution) or lapse—perhaps in an inevitable, periodic sense—back into the *WildWildWeb.com* pathway as it confronts the twin challenges of its aging population and the BioGen Revolution.

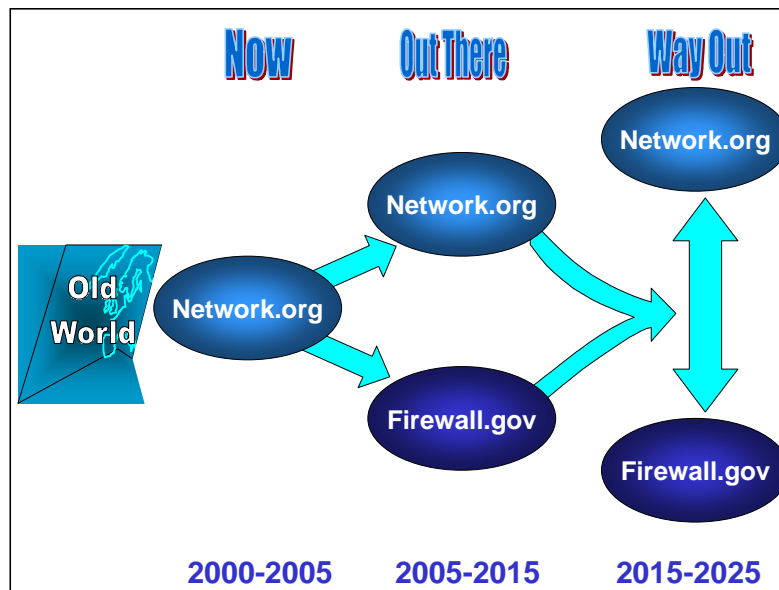
OldWorld

Our collective judgment for *OldWorld*’s “Now” diagnosis is the *Network.org* pathway (see Figure 15 below). This region is making an ambitious effort to unite its many historically-distinct political units into a collective economy. That development emphasizes consensus building and rule making.

Our “Out There” prognosis for *OldWorld* is that the current situation will either succeed in its *Network.org* pathway or, if that pathway triggers many unintended and stressful situations of undesired change, the *Firewall.gov* pathway (i.e., Europe withdrawing a bit from the world to concentrate on domestic issues arising from increased integration).

Our “Way Out” prognosis for *OldWorld* is that it will either settle into a long-term and stable *Network.org* pathway (i.e., the EU-NATO marriage triumphant) or stagnate in the *Firewall.gov* pathway (the neverending search for consensus and mutual adjustments in a system where individual countries maintain their sovereignty leaves Europe with a perpetual inward focus).

Figure 15. Probable global pathways for *OldWorld*



CareWorld

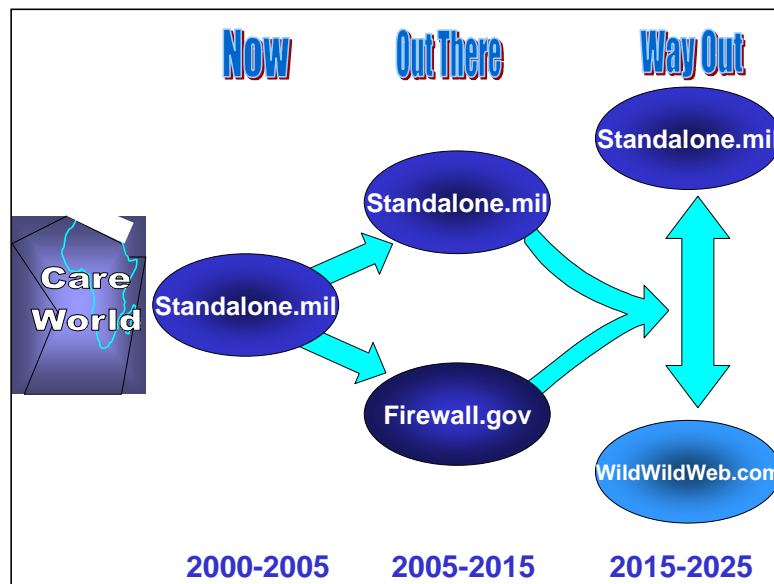
Our collective judgment for *CareWorld*’s “Now” diagnosis is the *Stand-alone.mil* pathway. We see this less as a conscious choice but as a long-term historical reality reinforced by the end of the Cold War and the general decline in great power interest in the continent. Moreover, this region

continues to be beset by a host of endemic health and security problems that keep foreign direct investment rather marginal (although it's currently picking up the pace somewhat).

Our “Out There” prognosis for CareWorld is that the current situation will either remain trapped in the *Standalone.mil* pathway (some things never change) or progress into the *Firewall.gov* pathway (major sections of Africa evolving toward more effective “collective bargaining” with the advanced countries for better trade and more beneficial aid relationships).

Our “Way Out” prognosis for CareWorld is that it will either remain trapped in the *Standalone.mil* pathway, or that rising (and positive) outside economic investment will trigger a (mostly positive) *WildWildWeb.com* pathway.

Figure 16. Probable global pathways for *CareWorld*



OilWorld

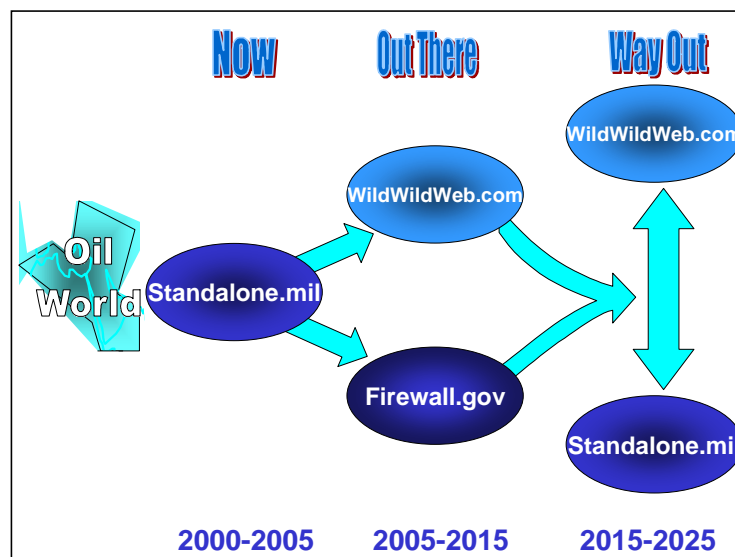
Our collective judgment for *OilWorld*'s “Now” diagnosis is the *Standalone.mil* pathway. This region—in terms of the Middle East—remains

largely an economic underperformer for internal security reasons, or—in the case of Caspian Basin states—is just emerging from centuries of significant isolation.

Our “Out There” prognosis for *OilWorld* is that the current situation will either evolve into the *WildWildWeb.com* pathway (especially as the Caspian Basin states open up), or the *Firewall.gov* pathway (i.e., the Islamic world re-separating itself from the tumultuous global “village” scene with its incessant Westernization, preferring to share oil and not much else).

Our “Way Out” prognosis for *OilWorld* is that it will either lapse back into a *Standalone.mil* pathway (i.e., “they came, they bought our oil, and we asked them to leave) or continue in a long-term *WildWildWeb.com* pathway (their relatively rapid integration into the global economy). (See Figure 17 below.)

Figure 17. Probable global pathways for *OilWorld*

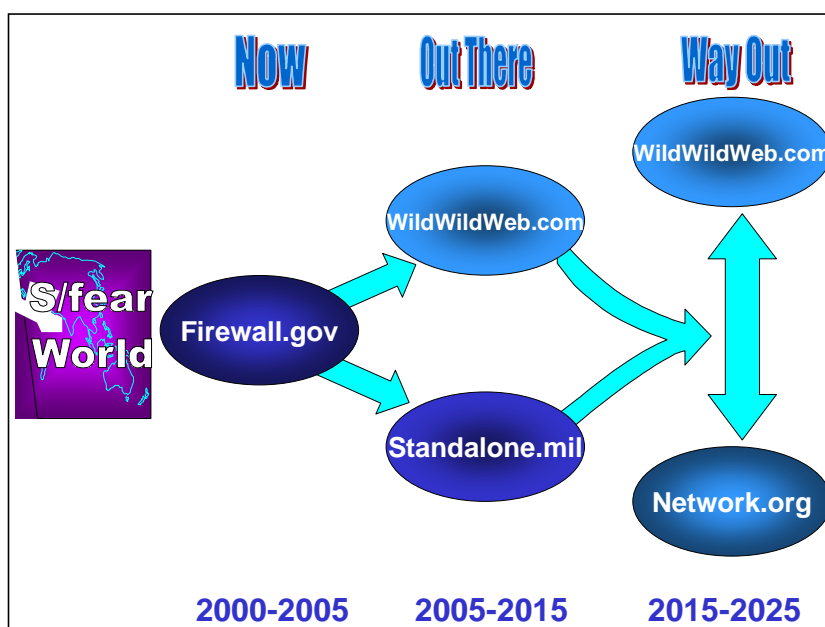


S/fearWorld

Our collective judgment for *S/fearWorld*’s “Now” diagnosis is the *Firewall.gov* pathway. This region is clearly having a hard time deciding what

it will and will not allow the globalized capitalist economic system to change in terms of its society, culture, and historical patterns of political rule. For now, it wants plenty of economic interaction with the outside world, but on its own cultural and political terms (e.g., “with *Chinese* characteristics”)—the classic firewall mentality. Moreover, this firewall perspective exists not merely in relation to the outside world (really the West), but likewise *within S/fearWorld*, as some want to “wall out” others (e.g., ASEAN is basically a way for Southeast Asian countries to “wall out” China).

Figure 18. Probable global pathways for *S/fearWorld*



Our “Out There” prognosis for *S/fearWorld* is that the current situation will either evolve into the *WildWildWeb.com* pathway (as the experience of progressively opening up to—and becoming more integrated with—the global economy triggers such profound internal change as to dramatically outpace the ability of local governments for rule making) or the *Standalone.mil* pathway (i.e., Asia withdrawing dramatically from the world (especially China and Indonesia) in shock at what integration into the global economy

truly means in terms of internal change forced upon them by “outsiders,” or the West “getting” to the masses by “going around” state governments bent on maintaining their elite dominance).

Our “Way Out” prognosis for *S/fearWorld* is that it will either remain trapped in a long-term but “relatively” stable *WildWildWeb.com* pathway (Asia’s complete integration into a global economy and culture will take a long time) or progress more rapidly into a stable and mature *Network.org* pathway (joining WestWorld and OldWorld as established pillars of the Network, thus leaving behind any potential for inter-state conflict).

Step IX: Combining “worlds-within-worlds” and likely pathways to generate a range of global mega-scenarios

Figure 19 below presents a summary of the four mega-scenarios in terms of global pathways for the worlds-within-worlds.

Figure 19. Summary presentation of four mega-scenarios

	<i>WestWorld</i>	<i>OldWorld</i>	<i>CareWorld</i>	<i>OilWorld</i>	<i>S/fear World</i>
<i>The Best vs. The Rest</i>	Network	Network	Standalone	Standalone	Network
<i>The Eastern Open</i>	WWW	Firewall	Firewall	WWW	WWW
<i>The Bend of History</i>	Network	Network	WWW	Firewall	Firewall
<i>The Great Regression</i>	Firewall	Firewall	Standalone	Standalone	Standalone

The Best vs. The Rest

This mega-scenario lies closest to the *Network.org* path. It's basically the coming together of the two most advanced economic regions (North America and Europe) with the two biggest "comers" (South America and Asia) in an economic and pol-mil condominium (strong economic free trade arrangements combined with growing military integration as "NATO" grows east (Asia) and south (Latin America). As a global division, then, it's basically a North-West Hemispheric world vs. a South-East Hemispheric world, leaving both *OilWorld* and *CareWorld* as essentially "bad neighborhoods" to be avoided and largely quarantined (Israel here would become "virtual tiger" and "go West"). So in this scenario you basically have West, *Old* and *S/fear* worlds mastering the New Economy, while *Oil* and *Care* remained mired in their collectivist, centralized, state-heavy past. The historical analogy here is to the incredible period of global networking that occurred roughly between the end of the U.S. Civil War and the onset of World War I (aka, Globalization I). This is the "separation point" scenario where the Competents move ahead and the Incompetents are left behind. The separation is achieved by numerous systemic shocks (pain divisions are more horizontal than vertical, meaning some segments of the population do well and others do not), of which the 97-98 Global Financial Crisis and the Year 2000 Global Boom are just the opening two rounds.

Big questions for this scenario (in terms of fleshing it out) are:

- What keeps the North Atlantic bond strong?
- How does Europe master the New Economy?
- How does Asia master the New Economy (processing the lessons of 97-98)?
- What brings Asia and Europe together?
- What keeps North America and Asia from dysfunctional competition?
- How is *OilWorld* ignored by the *Best* (end of oil primacy in global energy)?

The Eastern Open

This mega-scenario lies closest to the *WildWildWeb.com* path. It's basically Asia and SWA opening up simultaneously (basically, Asia opening up and triggering the same in SWA by way of example) to the outside world (both undergoing Gorbachev and/or Deng-like makeover and getting past their particularistic "values), with the United States serving as the major outside influence-especially in Mideast peace (both US and Asia fuel Caspian Basin boom). Meanwhile, Europe is spooked by all this turbo-capitalism and it's own EU difficulties and withdrawals, and Africa goes "firewall" in a progressive move to bargain collectively with the increasingly wide-open nature of the global economy. As a global division, then, it's basically the Pacific Rim taking the global lead and *OilWorld* finally leaving the Cold War behind, leaving Europe and Africa to play the new and old (respectively) backwaters (here we see the UK abandoning Europe for closer economic and political association with the U.S.). So in this mega-scenario you basically have the Asian Century come to fruition and the US shifts its focus from the Atlantic to the Pacific. The historical analogy here is to the Roaring Twenties. This is the "new paradigm" scenario where the New Economy so dramatically remakes large chunks of the planet (basically all of Asia) that turbo capitalism stands unopposed and triumphant. This "new global era" comes about due to the tremendous learning process (Friedman's *Globalution*, or "revolution from beyond") imposed on more closed societies (Asia and SWA) by the global systemic shocks (the pain simply crushes the traditional and centralized and rewards movement toward distributed), of which the 97-98 Global Financial Crisis and the Year 2000 Global Shake-Out are just the opening two rounds.

Big questions for this scenario (in terms of fleshing it out) are:

- What keeps the Goldilocks Economy humming so well in the US despite the coming "train wreck" of demographics?
- How does Europe fail at Union and regress?
- How does Asia progress beyond Asian Values--especially China and Japan?
- What new leaders trigger the Perestroika-like makeover of Mideast politics?

- How do *OilWorld* countries move trade in their oil dependency for "virtual tiger-dom" in the New Economy-and how does Israel (Wadi Valley) lead the way?
- How does a Pacific Century differ from an Atlantic Century?

The Bend of History

This mega-scenario lies closest to the *Firewall.gov* path. It's basically the United States seeking a U.S.-centered "network solution" for the world and, by doing so, triggering a firewall situation in both Asia and *OilWorld*, with both Europe and Africa coming under US sway economically and politically (Africa comes via Europe's influence as much as through our direct influence). As a global division, then, it's basically a Huntington-like *Clash of Civilizations*, with old colonial connections bringing together the Western Hemisphere with Europe and Africa, leaving *OilWorld* and *S/fearWorld* as the new "drop out" bloc that replaces the old socialist bloc (here we see Australia staying with the U.S., Israel going "orthodox," and Japan just saying "no"). So in this scenario you basically have a coming together of the "rogues" in an anti-American/Westernism/technology/secularism/etc. sort of bloc. The historical analogy here is to the Cold War period of the fifties and sixties. This is the "next ideology" scenario where the New Believers drop out of the U.S.-led system and only America champions the sort of rough-and-tumble turbo capitalism that defined the 1990s. This "new history" (as opposed to the "End of History") comes about due to the severe differentials experienced in global systemic crises (pain divisions are more vertical than horizontal, meaning some regions do well and some do not), of which the 97-98 Global Financial Crisis and the Year 2000 Global Recession are just the opening two rounds.

Big questions for this scenario (in terms of fleshing it out) are:

- What drives the US to be more aggressive in pushing New Economy/turbo capitalism in spite of significant global pain?
- How does Europe spin out of control and go WWW?
- How does Asia fail at the New Economy?
- What brings Asia and the Middle East together?
- What destroys the North American-Asian economic relationship?

- How does a new ideology coalesce and energize and anti-U.S. bloc of rogues?

The Great Regression

This mega-scenario lies closest to the *Standalone.mil* path. It's basically the United States suffering a significant economic impact (New Economy bubble burst, setting in vicious cycle of deflation a la Japan in the 1990s), withdrawing from the "scary" world and triggering reversion to form elsewhere (Europe stays united, while the rest devolve into "security dilemma" status more akin to the 1930s). As a global division, then, it's basically every region for itself, with a divided West largely looking after its own neighborhoods (U.S. in Western Hemisphere, which becomes one big United States, and Europe sticking close to the continent) and the rest of the world reorganizing itself according to the principle of regional spheres of influence (e.g., South Africa, Congo, Nigeria, Egypt, Israel, Iran, India, Turkey, Russia, China, India, Japan and Australia). So in this scenario you basically have a Great Leap Backward to the pre-globalism 19th Century, absent the European colonial empires. The historical analogy here is to the Global Depression of the 1930s. This is the "end of globalization II" scenario where the New Economy proves to be no more uniting as a global phenomenon than did the industrial age that drove Globalization I, as technology proves to be more adept at atomizing the planet than drawing it together. In short, the New Economy's focus on customization spells the end of mass markets, allowing everyone to "go their own way" (the Fleetwood Mac song that supersedes the Clintonian optimism of "Don't Stop Thinking About Tomorrow"). This "history repeats itself" comes about due to the severe economic dislocations caused by, and bad global economic management of, a seemingly neverending series of international economic crises (whose pain is inescapable and proves that many of our "dreams" about the New Economy "repealing the laws of economics" were just that-dreams), of which the 97-98 Global Financial Crisis and the Year 2000 Economic Collapse are just the opening two rounds.

Big questions for this scenario (in terms of fleshing it out) are:

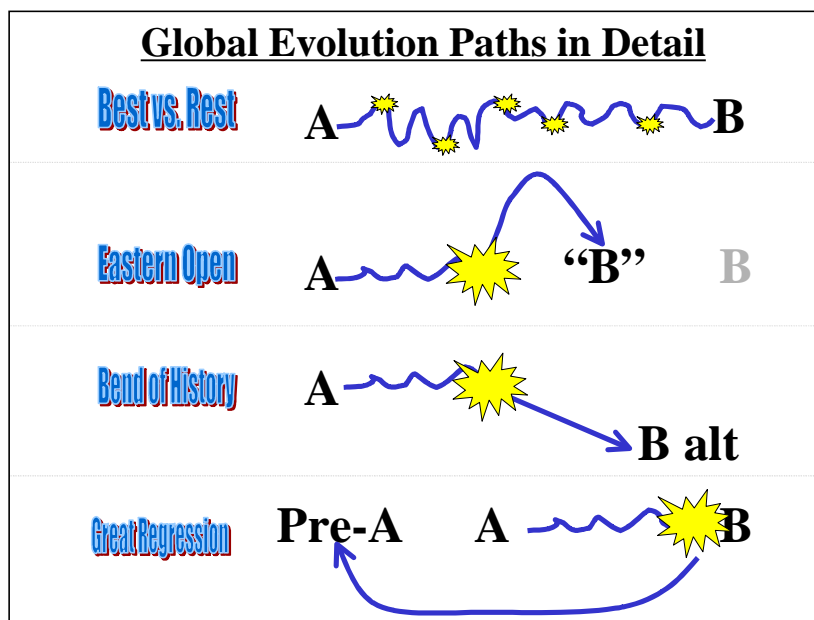
- What international events and domestic politics are required to pull the US into an strong isolationist bent?
- How does Europe reassert itself globally as a collective superpower?

- How does Asia self-immolate?
- What keeps the Mideast stuck in a cycle of violence?
- How bad can Africa get?
- What happens to global vision now that the US no longer defines the future?

Mega-scenarios described in terms of global evolution paths

Figure 20 below presents the four mega-scenarios arrayed by type of global evolution pathway. This typology takes three of its cases (all but the *Great Regression* case) from Eric Beinhocker's article on "Robust Adaptive Strategies."¹⁵

Figure 20. Mega-scenarios arrayed by global evolution path



15. Eric D. Beinhocker, "Robust Adaptive Strategies," *Sloan Management Review*, Spring 1999, pp. 95-106.

We posit four basic evolutionary pathways for global change:

- ***Best vs. Rest*** = no disruptive events (only minor perturbations). The evolution is relatively straightline in direction, with minor disruptive events not altering the pathway in any serious manner. Things change slowly but surely in this path.
- ***Eastern Open*** = a seriously disruptive event, probably at the sub-national level, meaning a *Perestroika*-like internal revolution that affects a great number of states (here in *OilWorld* and *S/fearWorld*). The global pathway endpoint (B) is not altered here, but it is reached more quickly (“B”). In short, the inevitable happens earlier here.
- ***Bend of History*** = a seriously disruptive event that dramatically alters the national-security calculations of great numbers of nation-states and, by doing so, alters the global path. In this model, an “Alternative B” endpoint is achieved instead of the presumed inevitable “B.”
- ***Great Regression*** = a seriously disruptive event at the system level that breaks the existing pattern of international relations and forces a cyclical reversion to “Pre-A” behavior. As we are currently in the second great Globalization phase, a reversion here would signal a return to 1930s style economic nationalism. Here, endpoint “B” would be significantly delayed and perhaps obviated completely by a new perceived endpoint for a lengthy period of history.

Step X: First-cut effort to link mega-scenarios to U.S. national security strategy

Master Grid of Mega-Scenarios

Figure 21 below presents a Master Grid of Mega-Scenarios that links the four across ten key indicators:

1. Degree of global change
2. Global evolution pathway (cited above in Figure 20) and international relations expert(s) often associated with this view

3. Global pathway (cited above in Figure 2) and mega-scenario (cited above in Figure 19)
4. Waltz “image” level where threats to international security are most likely to emerge (cited above in Figure 1)
5. Likely key system challenger, political ideological stripe (color) and major tool of change employed
6. U.S. domestic paradigm, political force likely to dominate, and driving political force of change
7. U.S. security policy and “face” of globalism that is presented to outside world¹⁶
8. U.S. Military force structure focus (major parameter for acquisition)
9. U.S. Military operational focus
10. Proposed non-lethal focus

Master Grid of Mega-Scenarios explained in greater detail

Degree of change

We differentiate between “system stability” and three levels of instability corresponding to Waltz’s “three images.”

Global evolution path and expert

Evolutionary paths are explained in the previous section. Thomas Friedman (*Lexus and the Olive Tree*) reflects the pro-globalization camp. Robert Kaplan (*Ends of the Earth*) represents the anti-globalization camp. Samuel Huntington (*Clash of Civilizations*) reflects the camp that defines future international conflict in the collective nation-state format (blocs). A variety of economic worrywarts (e.g., Paul Krugman on occasion, Robert Reich on occasion, and Jeffrey Sachs on occasion) and anyone who calls for “reform” of the global economic system basically falls into the camp of those who are concerned with potential system instability.

16. See Berger, “Four Faces of Global Culture,” *passim*.

Figure 21. Linking mega-scenarios to U.S. national security

Degree of Change	Global Evolution Path & Expert	Global Pathway/ Mega Scenario	Threats Level	Key Challenger /Political Stripe & Tools	US Domestic Paradigm/ Political Spectrum	US Security Policy/ Face of Globalism	US Military Force Structure Focus	US Military Operat'l Focus	NLT Focus
System Stability	No Disruptions Straightline Path Friedman	<i>Network.org</i> path <i>Best vs. Rest</i> mega-scenario	Peripheries	<i>Ghandi-After-Next</i> White Ideas	Long Boom Center-Left New Faiths	<i>Sys Admin</i> Force Davos culture	Platform Numbers to protect <i>Speed & Presence</i>	Cop on the Beat Shape the Enviro	Detect & Capture
Sub-National Instability	Horizontal Disruptions Path Sped Up Kaplan	<i>WildWeb.com</i> path <i>Eastern Open</i> mega-scenario	Individuals & Small Groups	<i>Lenin-After-Next</i> Red Terror	T-Rex Economy Center-Right New Faultlines	<i>Killer Apps</i> Force McWorld culture	RMA to protect <i>Inevitability & High-Tech</i>	SWAT Triage Worst Cases	Locate & Incapacitate
Nation-State Instability	Vertical Disruptions Path Altered Huntington	<i>Firewall.gov</i> path <i>Bend of History</i> mega-scenario	Rogue & Hegemonic Nation-States	<i>Ayatollah-After-Next</i> Green Jihads	New Tribalism Far Left New Rules	<i>Firewall</i> Force Faculty Club culture	Warfighting to protect <i>Overwhelming & Surge</i>	Squad Car Enforce the Rules	Differentiate & Isolate
System Instability	Architectural Disruptions Path Disjuncture Economic Fatalists	<i>Standalone.mil</i> path <i>Great Regression</i> mega-scenario	System Perturbations	<i>Hitler-After-Next</i> Brown Wars	New Protectionism Far Right/ New Rulers	<i>Homeland Defense</i> Force Missionary culture	Missiles & Space to protect <i>Invulnerability & Counter-WMD</i>	Border Guards Keep It Out Of Here	ID & Repel

Global pathway/mega-scenario

Previously explained in the text.

Threats level

In the *Best vs. Rest/Network.org* mega-scenario, all of the threats congregate in the peripheries both within the Network of advanced states (the “incompetents” within the populations) and outside the Network (“failed states” of 21st Century). In the other three mega-scenarios, the threat level corresponds to the Waltzian level of instability.

Key challenger/political stripe and tools

- *Ghandi-After-Next* refers to the Next Belief System that arises to challenge the networked, IT-driven, globalized New Economy paradigm. White indicates its pacifist, non-violent promotion of new ideas.

- *Lenin-After-Next* refers to the Next Economic Ideology that likewise arises to challenge the New Economy paradigm, albeit in a more politicized (Red equals socialism) and violent manner.
- *Ayatollah-After-Next* refers to the Next Cultural Ideology that arises to challenge the New Economy paradigm, with a focus on an anti-Western, anti-technology life-style (Green) more attuned to local customs. It is likewise “defended” in a violent manner (jihad).
- *Hitler-After-Next* refers to the potential for a system instability to open up opportunities for “strong solutions” in the manner of fascism (brown) and the return of inter-state warfare.

US domestic paradigm/political spectrum

- *Long Boom* refers to the continuation of the New Economy “Goldilocks” model (not too hot, not too cold). Judging by the Clinton Administration and the imitators it has spawned around the world, this is likely to go hand-in-hand with a Center-Left political orientation. The search for New Faiths would drive the political agenda (making the country “better”).
- *T-Rex Economy* refers to the harshest aspects of the winner-takes-all New Economy. A Center Right coalition is more associated with this form of *laissez faire* capitalism, and it would probably come to power via “wedge issues” (New Faultlines).
- *New Tribalism* refers to social engineering designed to correct the flaws of the New Economy. A Far Left coalition is required for this ambitious agenda, with plenty of New Rules resulting.
- *New Protectionism* refers to a Far Right version of New Tribalism, with private-sector focus on ameliorating social ills caused by the New Economy. Privatizing of many government services equals New Rulers.

US security policy/face of globalism

- *Sys Admin Force* is the U.S. Military trying to run the world by dealing with all levels of instability. The *Davos* globalization culture refers to a world run by economically-oriented elites (refers to Davos-based World Economic Forum).

- *Killer Apps Force* is the U.S. Military pursuing the RMA in a big fashion out of fear that others (notably, China) are close behind. The hands-off approach to global conflicts, saving ourselves for the “real threats,” promotes the spread of the *McWorld* globalization culture (American culture unopposed and unfiltered).
- *Firewall Force* is the U.S. Military maintaining a Cold War-era warfighting focus on big wars and adopting a surge mentality. The *Faculty Club* globalization culture refers to our tendency to lecture others on behavior and—occasionally—to break into situations (Yugoslavia) to enforce our views.
- *Homeland Defense Force* is the U.S. Military going into isolationist mode. Here we’d leave the spread of U.S. culture to private NGOs and PVOs (*Missionary* focus).

US Military force structure focus

Key choice is what attribute you most want to protect:

- *Speed*--respond to every crisis quickly (*Best vs. Rest*)
- *Inevitability*--respond to important crises with the assurance that we cannot be stopped (*Eastern Open*)
- *Overwhelming*--hewing to the notion that we must size ourselves by the 2-Major Theater War standard (*Bend of History*)
- *Invulnerability*—going back to the temptation of seeking WMD security in a world system that refused the notion (*Great Regression*).

US Military operational focus

- *Cop on the Beat* refers to being everywhere, interacting with everyone, and trying to manage a little bit of every situation.
- *SWAT* refers to picking and choosing our fights, and only coming in when the locals can’t handle it.
- *Squad Car* refers to rolling in only after “crimes” have been committed and doing so with top-flight power projection capabilities.

- *Border Guards* reflects the isolationist tendency to want to stop “other people’s problems at our borders.”

Non-lethal focus

- *Detect & Capture* refers to the paradigm of finding and hunting down challengers to the system that exist on or in the peripheries of the Network.
- *Locate & Incapacitate* refers to the Network-Centric notions of being able to “control” an enemy and stop aggressive actions before they begin.
- *Differentiate & Isolate* refers to the containment focus on “rogue powers.”
- *ID & Repel* refers to the shield focus of Homeland Defense.

U.S. relations with “top twenty” powers in mega-scenarios

Figure 22 below displays our attempt to predict the general tenor of U.S. relations with the 20 states most important to U.S. foreign policy across the four mega-scenarios.

The “top twenty” states (in alphabetical order) are:

1. Argentina
2. Australia
3. Brazil
4. China
5. Egypt
6. France
7. Germany
8. India
9. Indonesia
10. Iran
11. Israel
12. Japan
13. Mexico
14. Poland
15. Russia
16. Saudi Arabia
17. South Africa
18. South Korea
19. Turkey
20. United Kingdom

Figure 22. Key U.S. Relationships Plotted Across Mega-Scenarios

		Best vs. Best	Eastern Open	Bend of History	Great Regression
WestWorld	Argentina	Ally	Competitor	Ally	Competitor
	Brazil	Ally	Competitor	Competitor	Competitor
	Mexico	Ally	Ally	Ally	Foe
OldWorld	France	Competitor	Foe	Competitor	Competitor
	Germany	Ally	Foe	Competitor	Foe
	Poland	Ally	Competitor	Competitor	Competitor
	U K	Ally	Ally	Ally	Competitor
OilWorld	Egypt	Ally	Competitor	Foe	Competitor
	Iran	Competitor	Competitor	Foe	Foe
	Israel	Ally	Competitor	Foe	Competitor
	Saudi Arabia	Competitor	Foe	Competitor	Competitor
	Turkey	Competitor	Competitor	Foe	Foe
CareWorld	South Africa	Competitor	Competitor	Ally	Foe
S/fearWorld	Australia	Ally	Competitor	Ally	Competitor
	China	Ally	Competitor	Foe	Foe
	India	Competitor	Competitor	Foe	Competitor
	Indonesia	Competitor	Competitor	Foe	Competitor
	Japan	Ally	Competitor	Foe	Competitor
	Russia	Ally	Competitor	Foe	Competitor
	South Korea	Ally	Competitor	Competitor	Competitor

We define the three categories as follows:

- *Ally* is someone America can count on “in the crunch” and never really worries about
- *Competitor* is someone America can’t really count on “in the crunch,” but worries about only in a competitive or down-the-road foe sort of way
- *Foe* refers to someone America worries about in terms of violent conflict.

Refer to the previous sections and their descriptions of the mega-scenarios for the logic employed in these selections.

Steps beyond “X”

At this point, our effort in fleshing out the mega-scenarios and the global and regional alternative futures that feed them gives way to our project’s main report, where linkages are drawn between the scenario material

presented here and our project's main output--a joint vision for future development and employment of non-lethals within the U.S. military as a whole.

It would be our intention in any future expansion and updating of this alternative futures analysis to further flesh out the scenario material provided here in Steps IX (mega-scenarios) and X (linking mega-scenarios to U.S. national security).

Concluding remarks: a postcard from the road

The scenario-building performed in this research memorandum reflects the study team's best efforts at capturing and systematically analyzing a finite set of variables that we think present the reader with the most explanatory power, and thus vision, regarding the range of potential global futures. The new material presented in this updated and expanded version of the original 1998 research memorandum represents a change of approximately 25 percent, meaning that in about one-quarter of the "input" variables (e.g., matrix questions and spotlights) we were able to locate what we think are better expressions of current global change, as reflected in the "distance" traveled over the last year and a half. We think that's an appropriate amount of change, not just because the last couple of years has taught us a lot about the emerging global "rule set" (think of our new understanding surrounding the Global Financial Crisis of 1997-98), but because any passage of time forces us to recalibrate our "compass readings" (global pathways) to measure the progress gained. In short, the world constantly undergoes change and so our appreciation of global futures must change along with it.

While our second iteration with this alternative futures framework leaves us ever more convinced of its utility and overall analytic robustness, we do not pretend that somehow our understanding of the future *peaks* with the publication of this new and expanded version. What we have presented here is our best current take on the world's future. In sum, there is no endpoint in this analytic *journey*, only *postcards* from a *road* that never ends.

This one is postmarked *October 1999*.

Appendix: Bibliography of alternative global/ regional futures

A

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Annex B: Operational Context

Annex B: Operational Context

Overview

Purpose

The purpose of this annex is to present additional details from the study of future use of non-lethals, focusing on the range of operational contexts, i.e. types of military operations at different levels on the spectrum of threats and crises.

The annex begins with a brief overview of the study, which includes a description of where the work on operational context fits into the overall methodology. The following section presents some of the study's detailed results¹.

Study overview

The study as a whole, examined if, where, and how non-lethals might contribute to future military operations.

The study's methodology

The study group applied a methodology whose foundation had four pillars—alternative futures, operational context, tasks, and technologies—and two-way connections between pillars. We examined threats and crises that might emerge, determined the Joint and Service tasks performed in different military operations, and assessed technologies' potential capabilities vs. task requirements. Figure 1 provides an illustration.

This methodology explicitly examines:

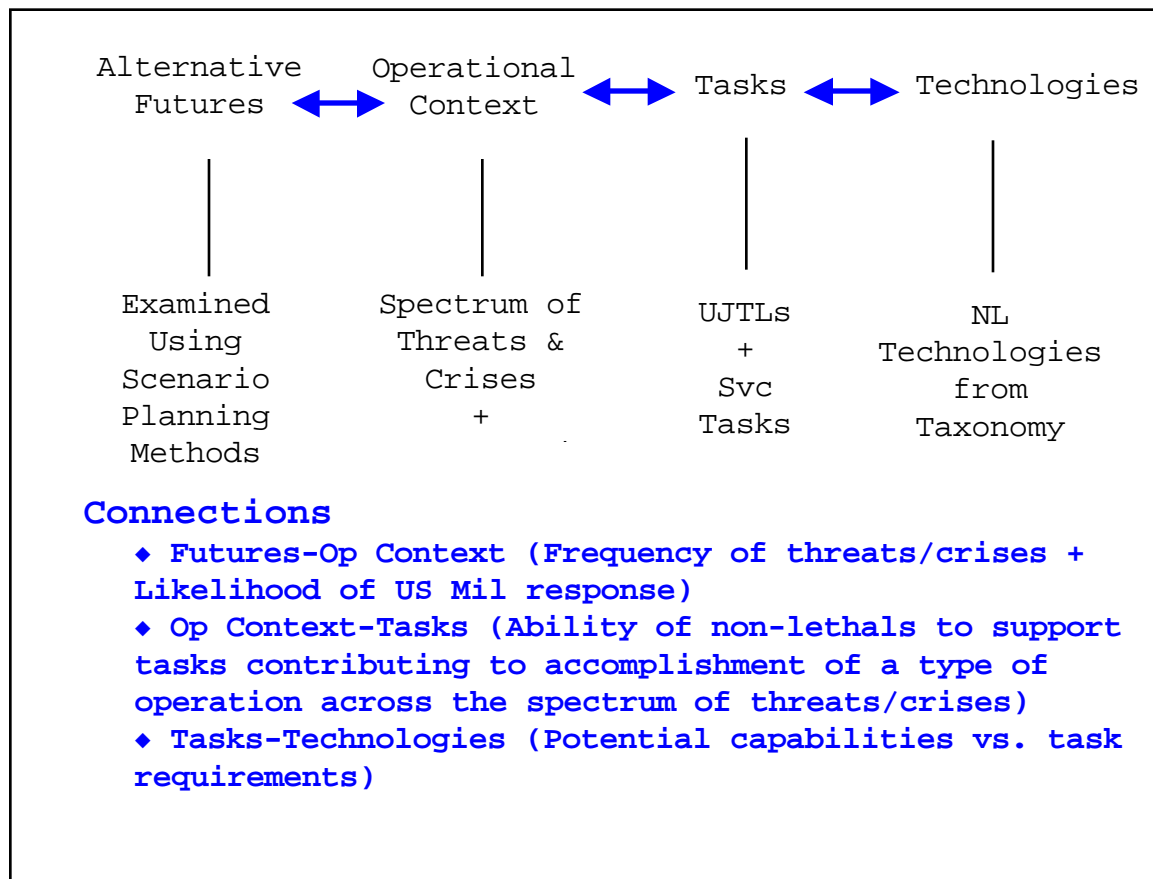
- Different alternative future pathways—which may affect the frequency of threats and crises across different geographic

¹ This study has separate annexes covering alternative futures, operational context (this annex), tasks, and technologies.

regions and the likelihood of U.S. military involvement

- The entire spectrum of threats and crises²—from Domestic Emergencies through Global War—and specific types of military operations based largely on past operational experience
- All tasks from the Universal Joint Task List (UJTLs) and Service task lists.
- The potential abilities of non-lethal technologies to accomplish tasks

Figure 1. Illustration of the study's methodology



Key study results

Applying this detailed approach, we identified where and how non-lethals could contribute.

² This terminology is derived from the current National Security Strategy

Lethal weapons clearly form the core of the nation's arsenal, and they will continue to do so. Non-lethals can, however, offer valuable complementary capabilities. And there are selected areas where they could offer advantages or unique opportunities relative to lethals. Table 1 lists some of these areas. Not surprisingly, the greatest number of opportunities exists at the lower end of the spectrum of conflict. But opportunities exist—including all of the items in the table—even at the Major Theater War (MTW) level.

Table 1. Important opportunities for non-lethals

Key areas where non-lethals offer significant or unique advantages relative to lethals	Non-lethal technologies potentially applicable to these tasks
Creation or enhancement of a target's signature	<ul style="list-style-type: none"> ▪ Taggants/Markers
Counter-mobility and area denial effects (with reversibility of effects)	<ul style="list-style-type: none"> ▪ Calmatives ▪ Malodorants ▪ Entanglements ▪ Reactants
Degrading WMD production and delivery systems (Non-lethals could reduce the risk of NBC release)	<ul style="list-style-type: none"> ▪ Electromagnetic ▪ Reactants ▪ Bio-degrading microbes
Deception (Affect—positively or negatively—perceptions)	<ul style="list-style-type: none"> ▪ Obscurants ▪ Optical technologies
Breaching (Facilitate movement and maneuver over and through barriers obstacles, and mines)	<ul style="list-style-type: none"> ▪ Barrier foams
Capture individuals for Intel purposes	<ul style="list-style-type: none"> ▪ Counter-personnel technologies
Protect forces and facilities	<ul style="list-style-type: none"> ▪ Most of the non-lethal taxonomy

In addressing the fundamental question—*Can non-lethals contribute to future military operations?*—the answer is **Yes**.

With respect to where and how they can contribute:

- Non-lethals apply across the hierarchy of tasks—strategic, operational, and tactical levels
- Non-lethals have major applications not just for Force Protection but also for Movement/Maneuver and Employing

Forces/Fires, with fewer applications for ISR and C2.

- Non-lethals can not only complement lethals but also, for some tasks, offer advantages or unique contributions. This is true across the spectrum of threats and crises including MTW and higher, although it is true for an increasing number of tasks at the lower end of the spectrum.

Description of Operational Context

The operational context pillar has two components: the spectrum of threats and crises—divided into seven different levels—and 20 specific types of military operations. These are listed in Table 2. We derived this primarily from an examination of real-world operations, complemented by a review of doctrinal materials.

Table 2. Spectrum of threats and crises and types of military operations

Spectrum of threats and crises	Types of military operations	
▪ Domestic Emergencies	▪ Combat Operations	▪ Combat Search and Rescue (CSAR)
▪ Homeland Defense	▪ Blockade	▪ Humanitarian Assistance Operations
▪ Peacetime Operations	▪ Freedom of Navigation	▪ Peacekeeping
▪ Smaller-Scale Contingencies (SSCs)	▪ No-Fly Zone	▪ Peace Enforcement
▪ Major Theater of War (MTW)	▪ Demonstration/ Show of Force	▪ Observer Missions
▪ Multiple MTW	▪ Non-Combatant Evacuation Operations	▪ Counter-Insurgency Support
▪ Global War	▪ Counter-Narcotics	▪ Insurgency Support
	▪ Maritime Interdiction Operations	▪ Special Operations
	▪ Counter-	

	Terrorism <ul style="list-style-type: none"> ▪ Anti-Terrorism ▪ Support Operations ▪ Security Operations
--	---

The operational context pillar is connected with the alternative futures pillar and with the tasks pillar. In establishing the connection between alternative futures and operational context, we analyzed the scenarios developed in the work on alternative futures³ and assessed the frequency of threats and crises emerging in different geographic regions. Also for each of the four scenarios, we assessed the likelihood of a U.S. military response to a crisis occurring in a given region. Figures detailing these assessments are shown in the next section.

In establishing the connection between tasks and operational context, we examined whether the use of non-lethals to perform a task would support a given military operation at different levels on the spectrum of threats and crises. Annex 3 includes the detailed results from this part of the analysis. Detailed results on operating context

Relevance/importance of types of military operations to a given level on the spectrum of threats and crises

The methodology applied in the study is both comprehensive and detailed:

- Our work on alternative futures generated 4 distinct scenarios.
- As shown in the previous table, we examined the operational context at seven levels on the spectrum of threats

³ Annex1--*Analysis of Alternative Futures and Their Security Implications* provides additional details

and crises, addressing 20 different types of military operations.

- There are 1457 UJTLs and Service tasks.
- The non-lethal taxonomy includes 55 types of technologies.

The number of possible combinations—of a particular technology employed in support of a specific tasks in a given operational context in one of the scenarios— is extremely large. Therefore, in analyzing these combinations, we filtered out many combinations. This was done in one of several ways. For example, employment of non-lethals isn't relevant for about 75 percent of the tasks (This is also true for lethal systems.). The reason is the nature of many of the tasks. You simply wouldn't apply non-lethals or lethals to process information or provide logistics support.

Another way in which we filtered out combinations is shown in the following series of figures. The figures show an assessment of the relevance/importance of specific types of military operations at the different levels on the spectrum of threats and crises. Some operations are not relevant: for example, combat operations or sanctions or a blockade during a domestic emergency. Others are important and relevant at the lower end of the spectrum—observer missions or support operations or counter-narcotics—but are, in the context of an MTW or Global War, not so important relative to that large-scale conflict.

Figure 2. Relevance/importance of the types of military operations during a Global War

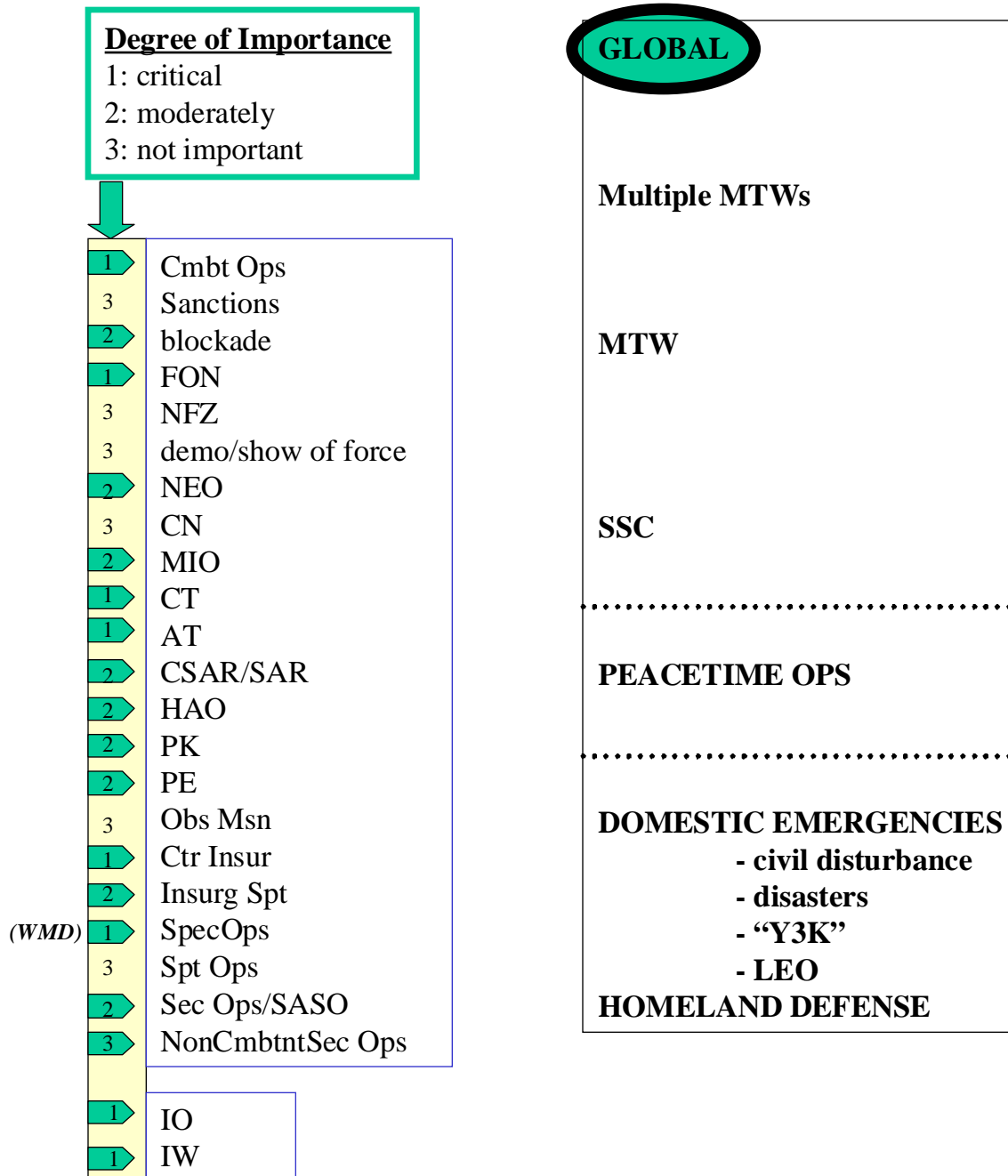
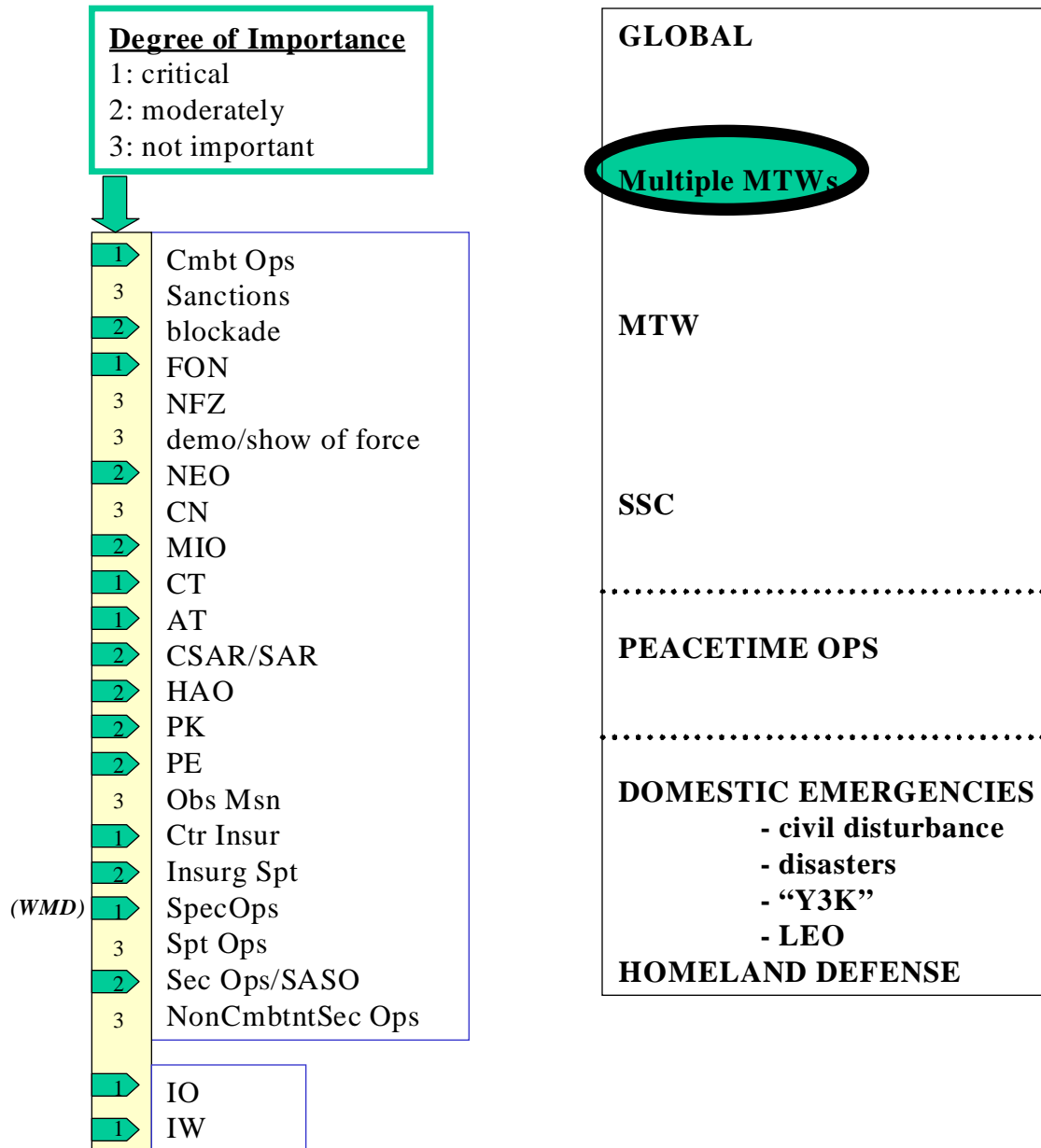


Figure 3. Relevance/importance of the types of military operations in the context of multiple ongoing Major



Theater Wars (MTWs)

Figure 4. Relevance/importance of the types of military operations during a Major Theater War (MTW)

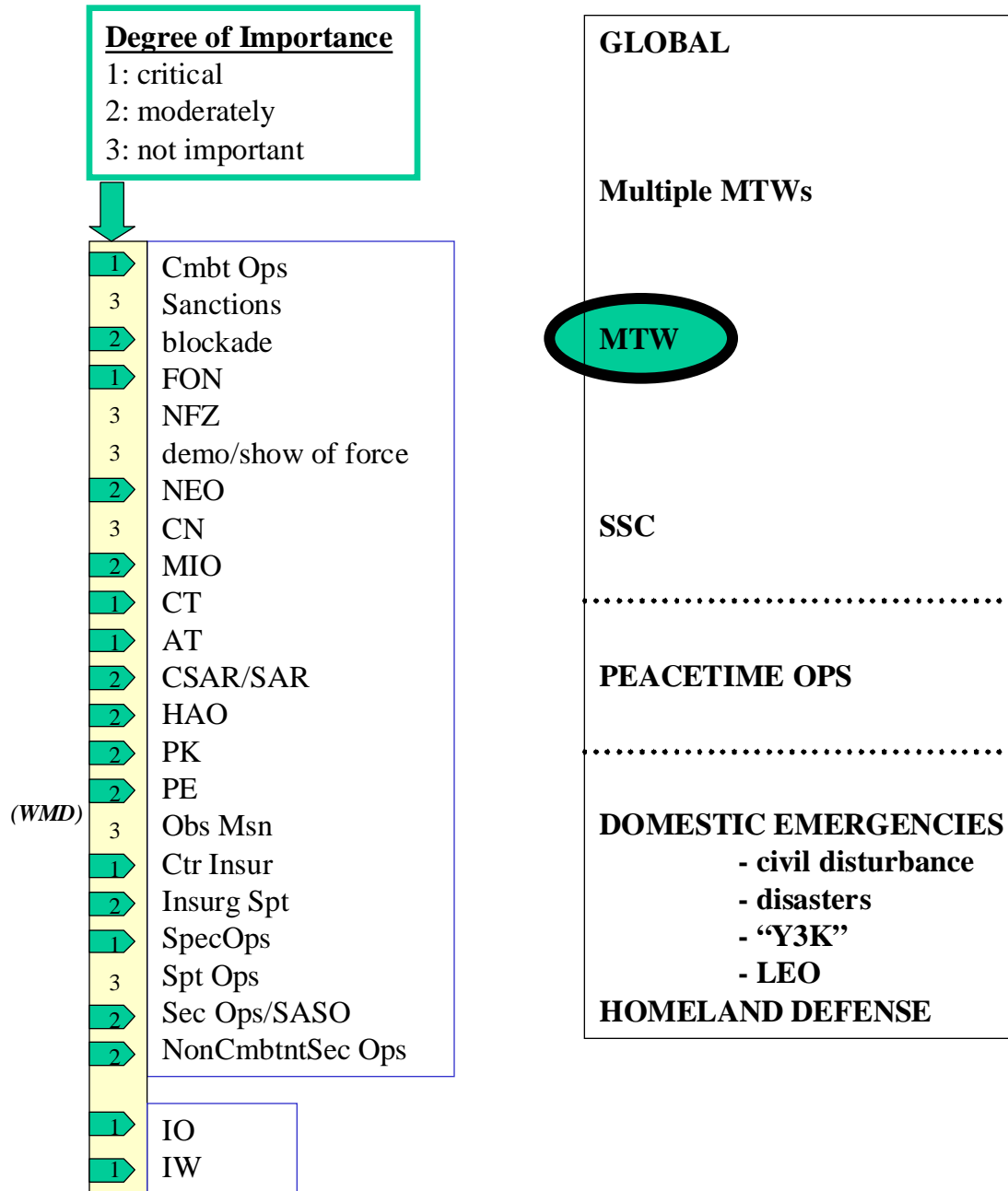


Figure 5. Relevance/importance of the types of military operations during a Smaller-Scale contingency (SSC)

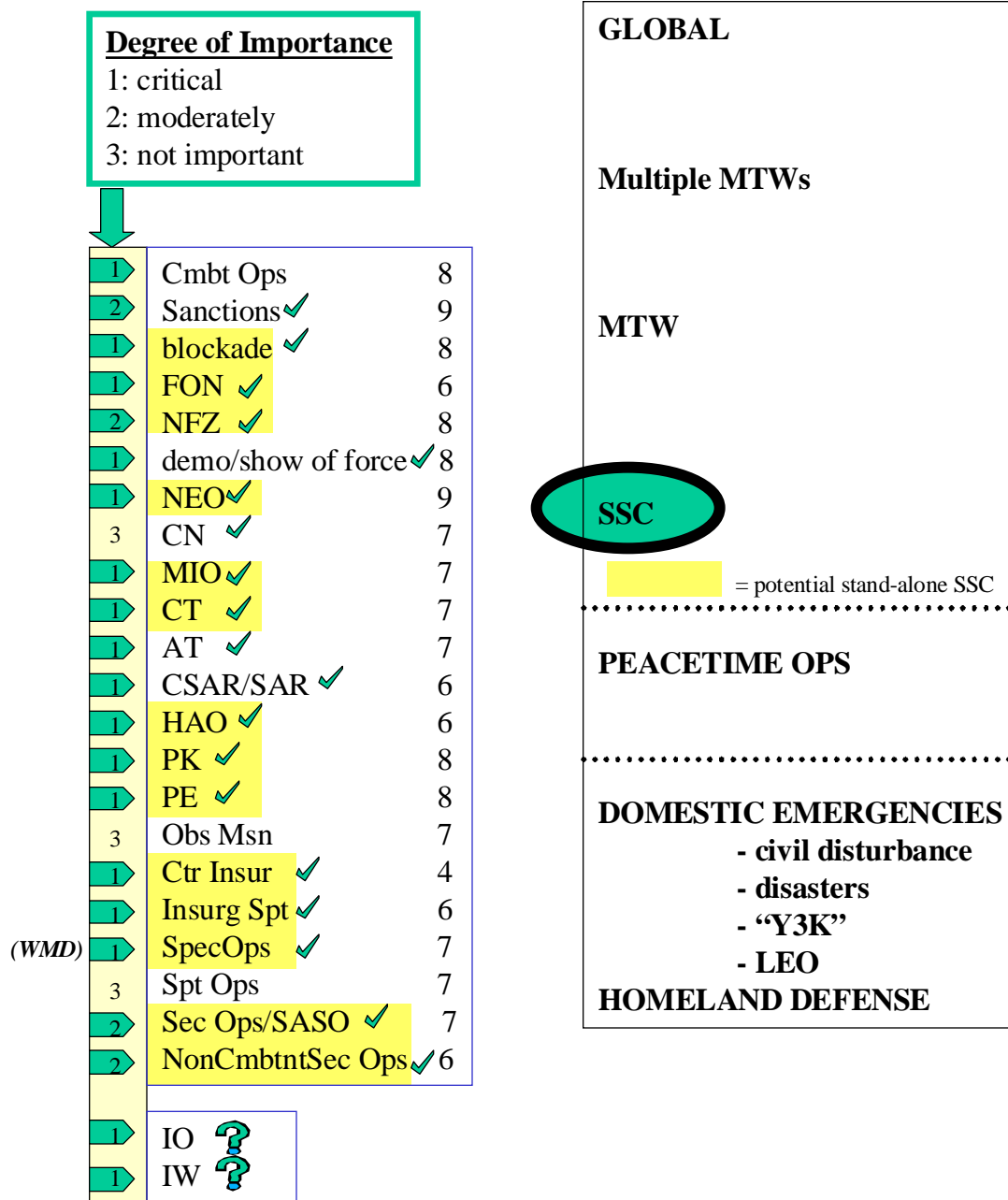


Figure 6. Relevance/importance of the types of military operations during Peacetime Operations

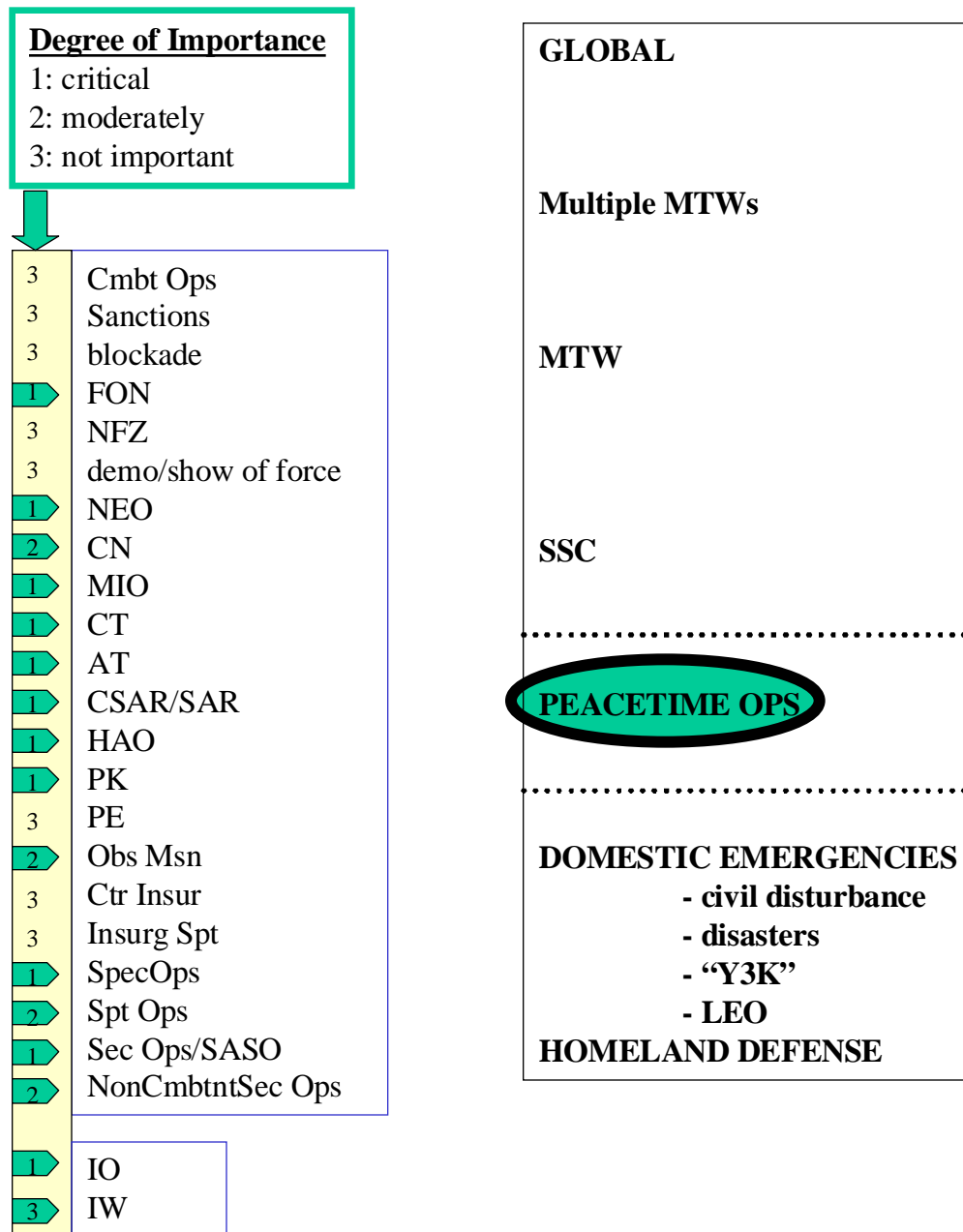


Figure 7. Relevance/importance of the types of military operations during a Domestic Emergency

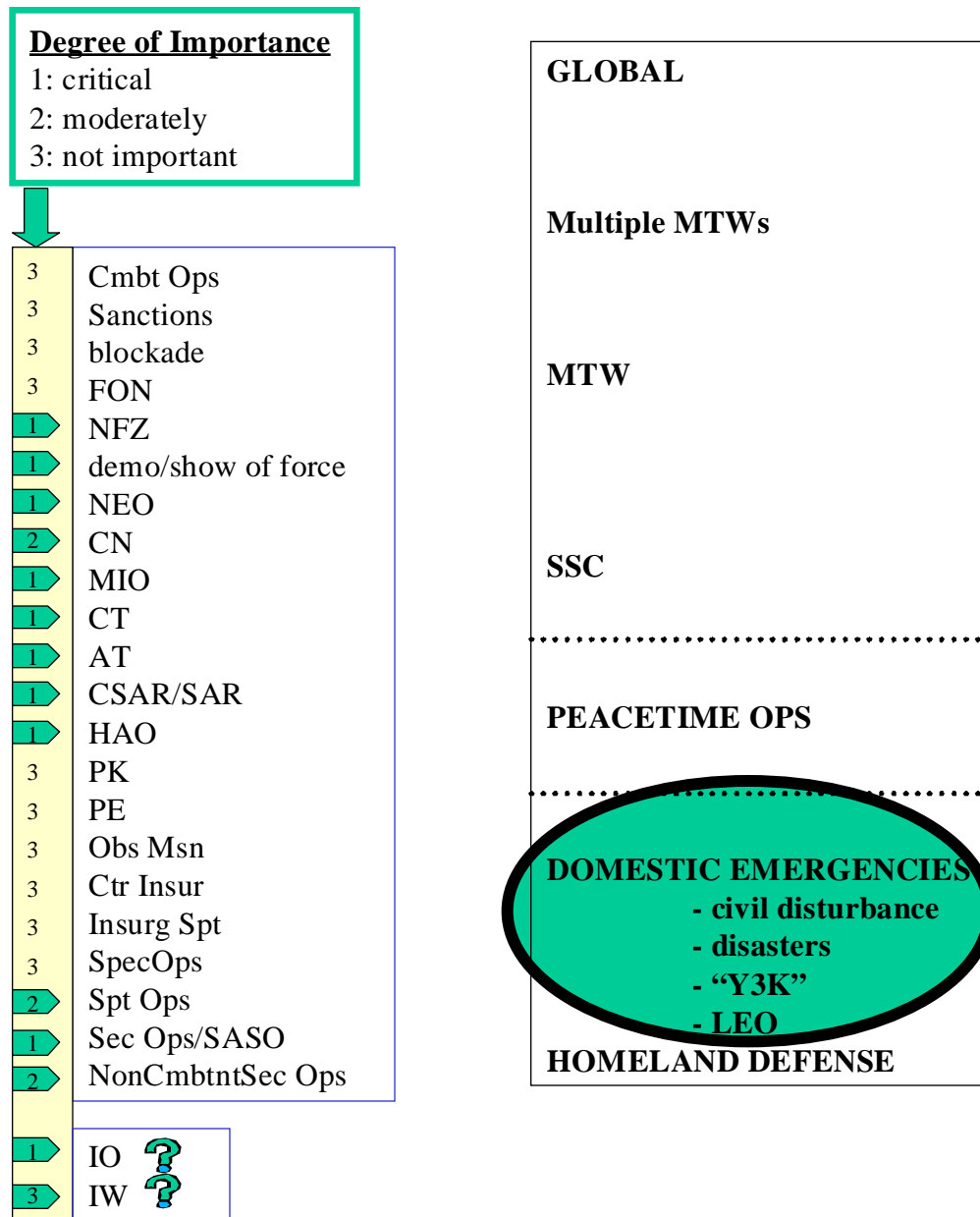
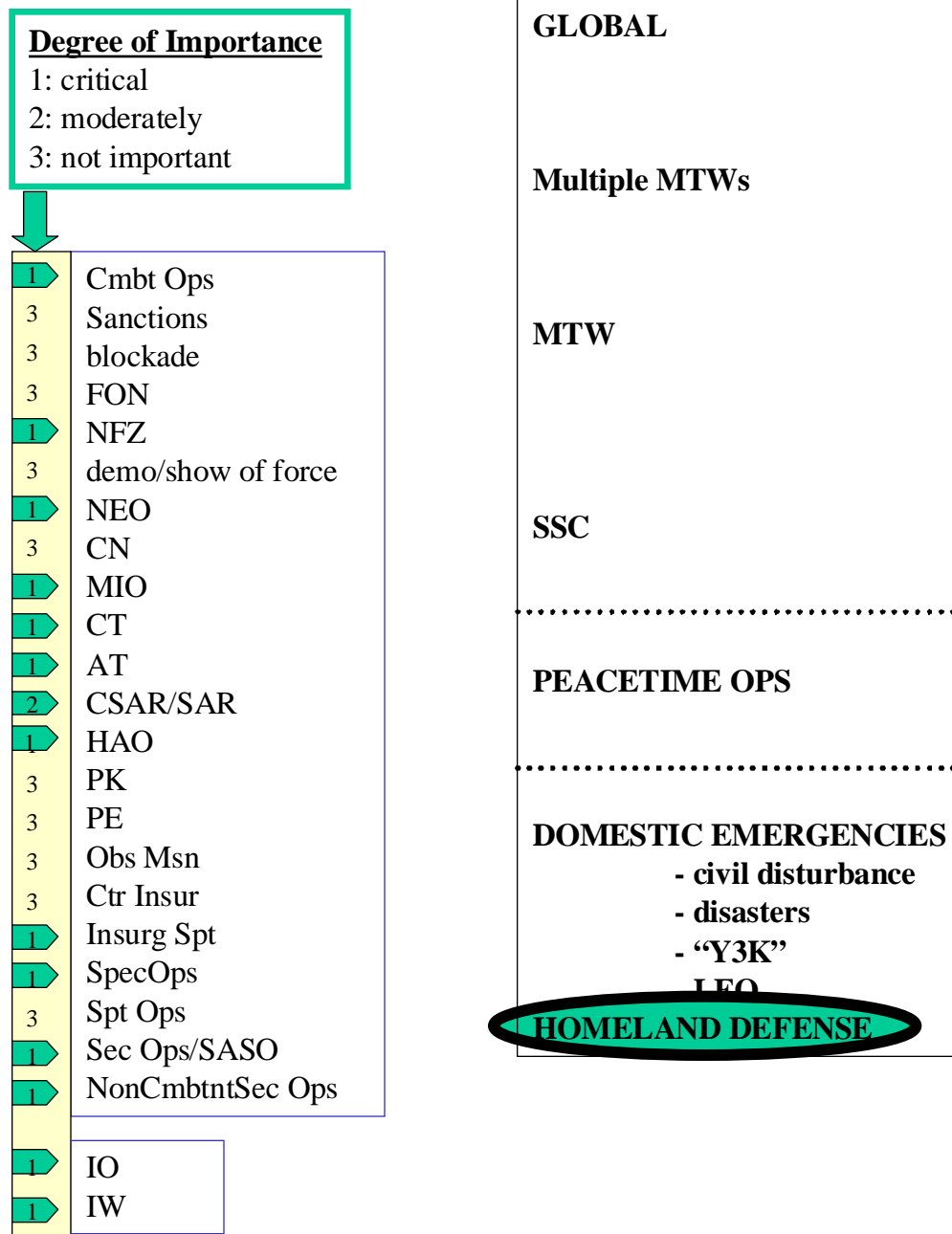


Figure 8. Relevance/importance of the types of military operations in the context of Homeland Defense



Connection between alternative futures and operational context

Combining ``worlds-within-worlds'' and likely pathways to generate a range of global mega-scenarios

This section will define, analyze and examine the connection between the alternative futures and the operational context. The subsequent figures will present the Mega-scenarios, the frequency of threat and crisis that are expected to occur within each of the global mega-scenarios, and the likelihood that the US military response with each of the regions of the world. This analysis is based upon the assumption that world events occurs as depicted and described in Annex A--Alternative Futures. In Annex A worlds are identified as follows: West World-Western Hemisphere; Old World-Europe; Care World-Africa; Oil World-Middle East; and S/Fear World-Asia. Figure 9 below presents a summary of the four mega-scenarios in terms of global pathways for the worlds-within-worlds.

Figure 9. Summary presentation of four mega-scenarios

	<i>WestWorld</i>	<i>OldWorld</i>	<i>CareWorld</i>	<i>OilWorld</i>	<i>S/fear World</i>
<i>The Best vs. The Rest</i>	Network	Network	Standalone	Standalone	Network
<i>The Eastern Open</i>	WWW	Firewall	Firewall	WWW	WWW
<i>The Bend of History</i>	Network	Network	WWW	Firewall	Firewall
<i>The Great Regression</i>	Firewall	Firewall	Standalone	Standalone	Standalone

The Best vs. The Rest

This mega-scenario lies closest to the Network.org path. It's basically the coming together of the two most advanced economic regions (North America and Europe) with the two biggest "comers" (South America and Asia) in an economic and political condominium (strong economic free trade arrangements combined with growing military integration as "NATO" grows east (Asia) and south (Latin America)). As a global division, then, it's basically a North-West Hemispheric world vs. a South-East Hemispheric world, leaving both OilWorld and CareWorld as essentially "bad neighborhoods" to be avoided and largely quarantined (Israel here would become "virtual tiger" and "go West"). So in this scenario you basically have West, Old and S/fear worlds mastering the New Economy, while Oil and Care remained mired in their collectivist, centralized, state-heavy past. The historical analogy here is to the incredible period of global networking that occurred roughly between the end of the U.S. Civil War and the onset of World War I (aka, Globalization I). This is the "separation point" scenario where the Competents move ahead and the Incompetents are left behind. The separation is achieved by numerous systemic shocks (pain divisions are more horizontal than vertical, meaning some segments of the population do well and others do not), of which the 97-98 Global Financial Crisis and the Year 2000 Global Boom are just the opening two rounds

The Eastern Open

This mega-scenario lies closest to the WildWildWeb.com path. It's basically Asia and SWA opening up simultaneously (basically, Asia opening up and triggering the same in SWA by way of example) to the outside world (both undergoing Gorbachev and/or Deng-like makeover and getting past their particularistic "values"), with the United States serving as the major outside influence-especially in

Mideast peace (both US and Asia fuel Caspian Basin boom). Meanwhile, Europe is spooked by all this turbo-capitalism and it's own EU difficulties and withdrawals, and Africa goes "firewall" in a progressive move to bargain collectively with the increasingly wide-open nature of the global economy. As a global division, then, it's basically the Pacific Rim taking the global lead and *OilWorld* finally leaving the Cold War behind, leaving Europe and Africa to play the new and old (respectively) backwaters (here we see the UK abandoning Europe for closer economic and political association with the U.S.). So in this mega-scenario you basically have the Asian Century come to fruition and the US shifts its focus from the Atlantic to the Pacific. The historical analogy here is to the Roaring Twenties. This is the "new paradigm" scenario where the New Economy so dramatically remakes large chunks of the planet (basically all of Asia) that turbo capitalism stands unopposed and triumphant. This "new global era" comes about due to the tremendous learning process (Friedman's *Globalution*, or "revolution from beyond") imposed on more closed societies (Asia and SWA) by the global systemic shocks (the pain simply crushes the traditional and centralized and rewards movement toward dis-tributed), of which the 97-98 Global Financial Crisis and the Year 2000 Global Shake-Out are just the opening two rounds.

The Bend of History

This mega-scenario lies closest to the *Firewall.gov* path. It's basically the United States seeking a U.S.-centered "network solution" for the world and, by doing so, triggering a firewall situation in both Asia and *OilWorld*, with both Europe and Africa coming under US sway economically and politically (Africa comes via Europe's influence as much as through our direct influence). As a global division, then, it's basically a Huntington-like *Clash of*

Civilizations, with old colonial connections bringing together the Western Hemisphere with Europe and Africa, leaving *OilWorld* and *S/fearWorld* as the new "drop out" bloc that replaces the old socialist bloc (here we see Australia staying with the U.S., Israel going "orthodox," and Japan just saying "no"). So in this scenario you basically have a coming together of the "rogues" in an anti-American/Westernism/technology/secularism/etc. sort of bloc. The historical analogy here is to the Cold War period of the fifties and sixties. This is the "next ideology" scenario where the New Believers drop out of the U.S.-led system and only America champions the sort of rough-and-tumble turbo capitalism that defined the 1990s. This "new history" (as opposed to the "End of History") comes about due to the severe differentials experienced in global systemic crises (pain divisions are more vertical than horizontal, meaning some regions do well and some do not), of which the 97-98 Global Financial Crisis and the Year 2000 Global Recession are just the opening two rounds.

The Great Regression

This mega-scenario lies closest to the Standalone.mil path. It's basically the United States suffering a significant economic impact (New Economy bubble burst, setting in vicious cycle of deflation a la Japan in the 1990s), withdrawing from the "scary" world and triggering reversions to form else-where (Europe stays united, while the rest devolve into "security dilemma" status more akin to the 1930s). As a global division, then, it's basically every region for itself, with a divided West largely looking after its own neighborhoods (U.S. in Western Hemisphere, which becomes one big United States, and Europe sticking close to the continent) and the rest of the world reorganizing itself according to the principle of regional spheres of influence (e.g., South Africa, Congo, Nigeria, Egypt, Israel, Iran, India, Turkey,

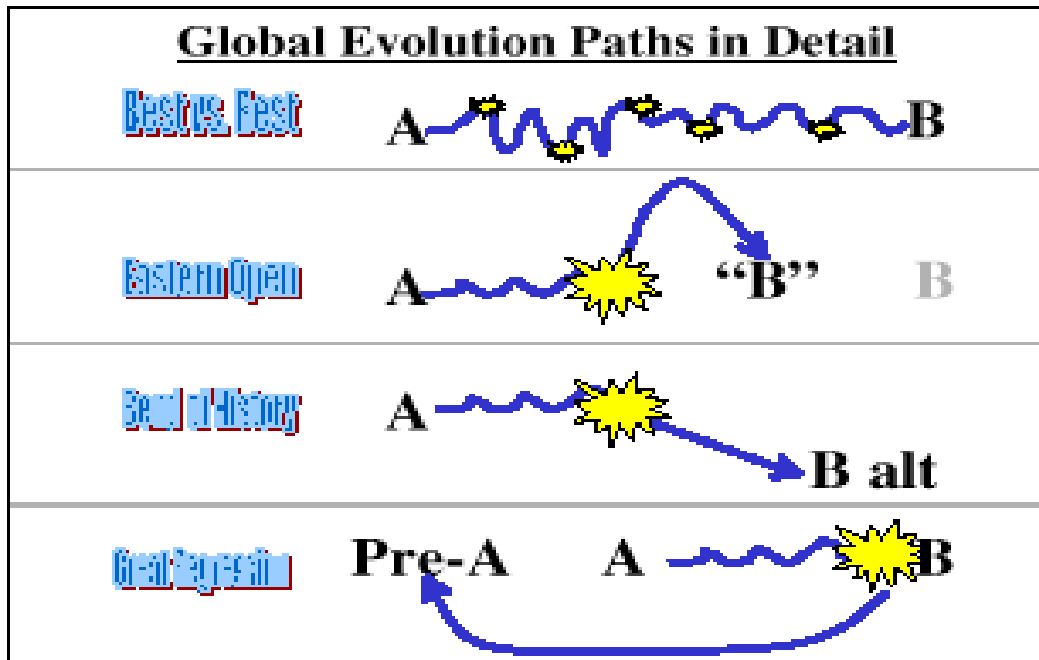
Russia, China, India, Japan and Australia). So in this scenario you basically have a Great Leap Backward to the pre-globalism 19th Century, absent the European colonial empires. The historical analogy here is to the Global Depression of the 1930s. This is the "end of globalizaton II" scenario where the New Economy proves to be no more uniting as a global phenomenon than did the industrial age that drove Globalization I, as tech-nology proves to be more adept as atomizing the planet than drawing it together. In short, the New Economy's focus on customization spells the end of mass markets, allowing everyone to "go their own way" (the Fleet-wood Mac song that supersedes the Clintonian optimism of "Don't Stop Thinking About Tomorrow"). This "history repeats itself" comes about due to the severe economic dislocations caused by, and bad global economic management of, a seemingly neverending series of international economic crises (whose pain is inescapable and proves that many of our "dreams" about the New Economy "repealing the laws of economics" were just that-dreams), of which the 97-98 Global Financial Crisis and the Year 2000 Eco-nomic Collapse are just the opening two rounds.

Mega-scenarios described in terms of global evolution paths

Figure 10 below presents the four mega-scenarios arrayed by type of global evolution pathway. This typology takes three of its cases (all but the *Great Regression* case) from Eric Beinhocker's article on "Robust Adaptive Strate-gies." ⁴

⁴ Eric D. Beinhocker, "Robust Adaptive Strategies," *Sloan Management Review*, Spring 1999, pp.95-106.

Figure 10. Mega-scenarios arrayed by global evolution path



The study group further examined and analyzed each of the mega-scenarios and their respective pathways to determine future operational requirements. Each of the different world regions, within each pathway, were assessed as to future outcomes relative to the entire spectrum threats and crisis—from Homeland Defense through Global War. Additionally, the likelihood of U.S. military response was examine and developed for each world region, within each parthway. The spectrum of future threats and crisis where assessed as increasing, decreasing, about the same as the current situations or had no application to that specific region. The following information will explain the evolution of events with the mega-scenarios as illustrated in Figure 10. After each brief explanation, the results of the study group's assessments are depicted in a set of two figures for each mega-scenario.

o **Best vs. Rest** = no disruptive events (only minor perturbations). The evolution is

relatively straightline in direction, with minor disruptive events not altering the pathway in any serious manner. Things change slowly but surely in this path.

Figure 11. Frequency of Threats and

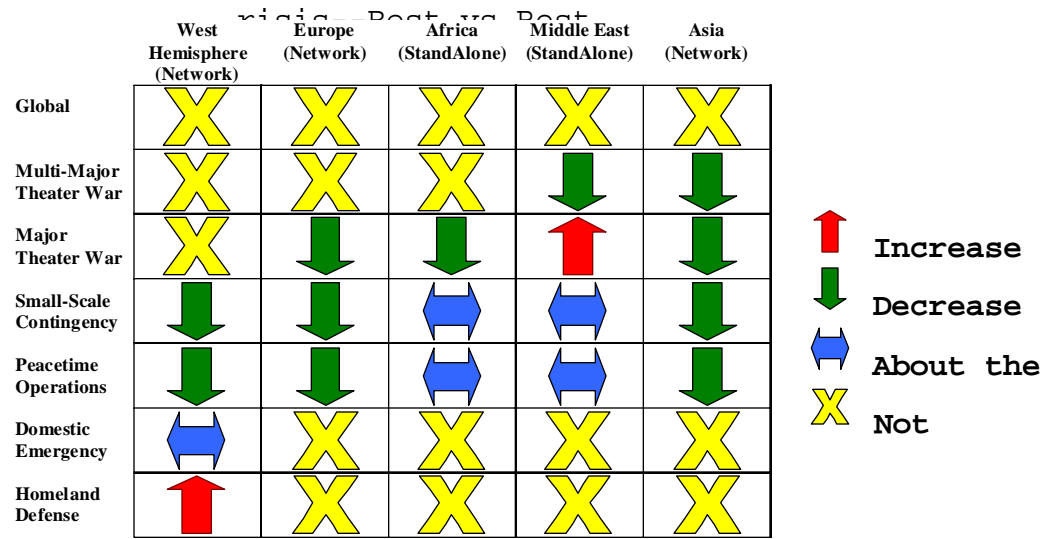
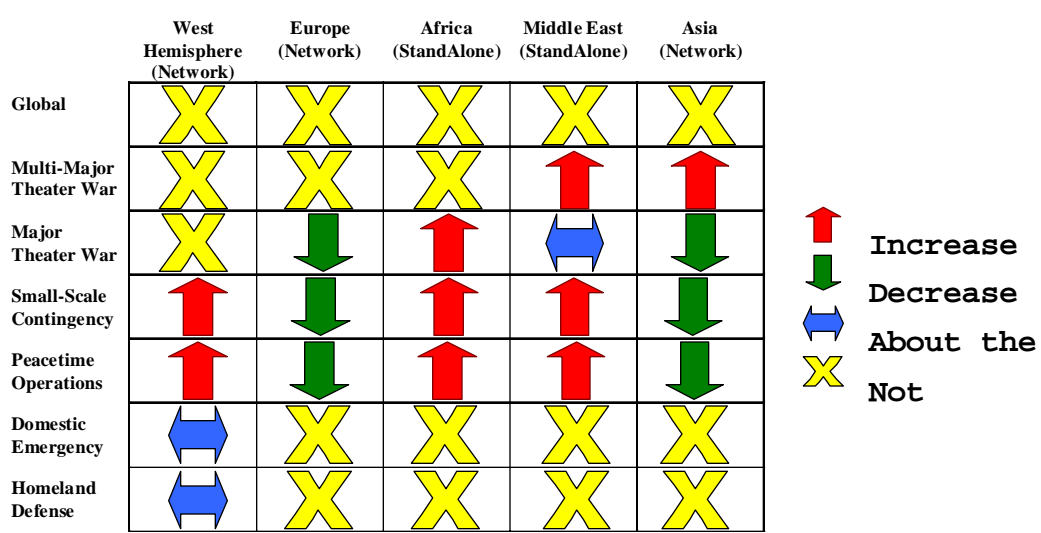


Figure 12. Likelihood of US Military Response--
Best vs Rest



o **Eastern Open** = a seriously disruptive event, probably at the sub-national level, meaning a

Perestroika-like internal revolution that affects a great number of states (here in *OilWorld* and *S/fearWorld*). The global pathway endpoint in figure 4 (B) is not altered here, but it is reached more quickly (''B''). In short, the inevitable happens earlier here.

Figure 13. Frequency of Threats and Crisis--

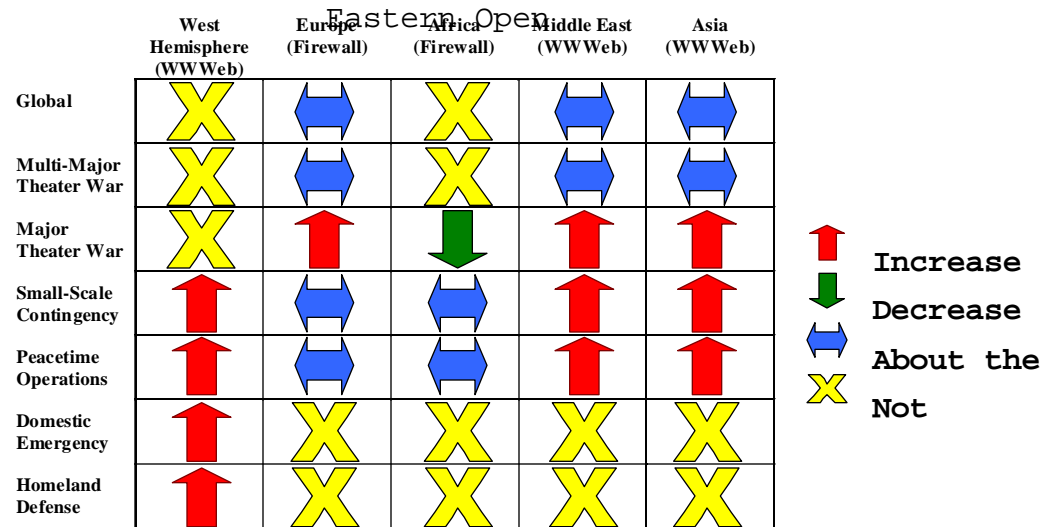
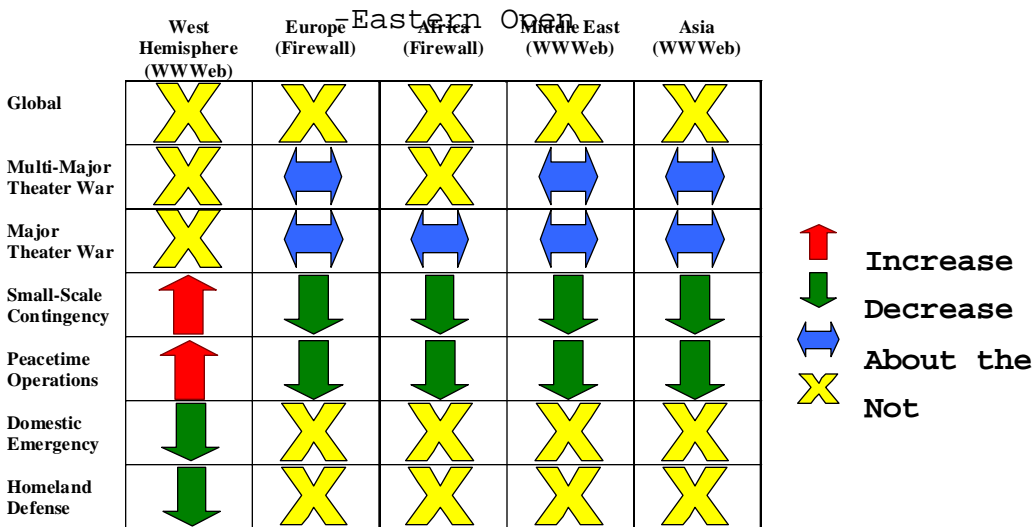


Figure 14. Likelihood of US Military Response--



o *Bend of History* = a seriously disruptive event that dramatically alters the national-

security calculations of great numbers of nation-states and, by doing so, alters the global path. In this model, a figure 4 ''Alternative B'' endpoint is achieved instead of the presumed inevitable ''B.''

Figure 15. Frequency of Threats and Crisis--Bend of History

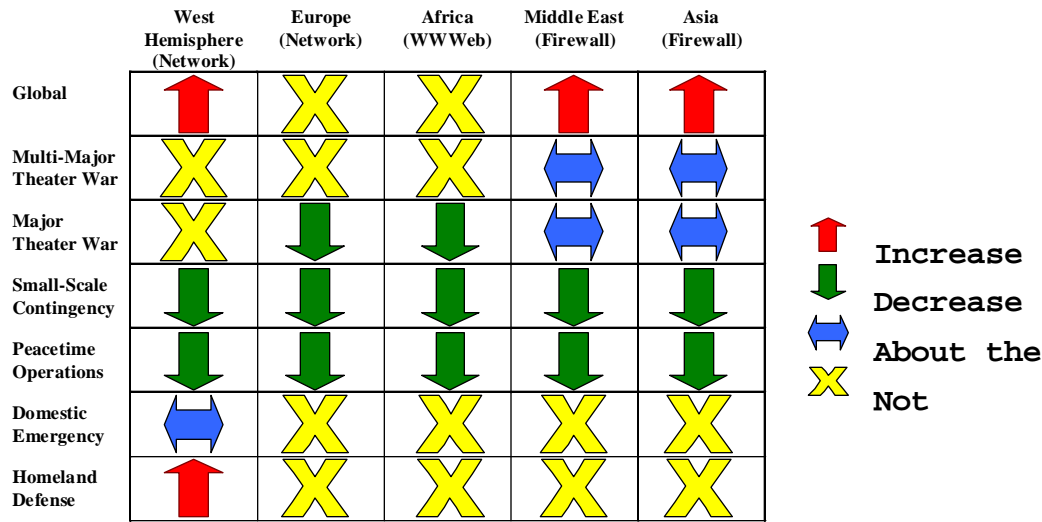
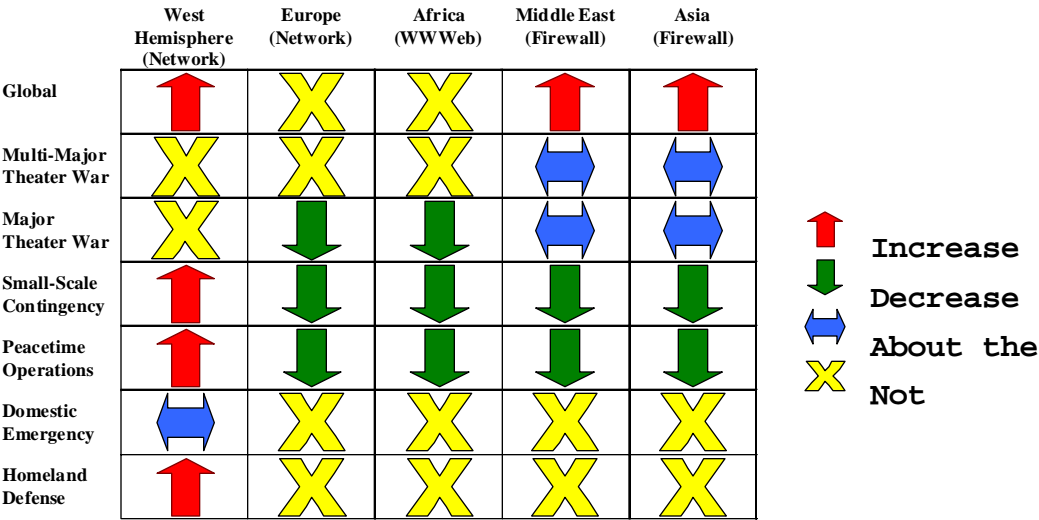


Figure 16. Likelihood of US Military Response—Bend of History



o **Great Regression** = a seriously disruptive event at the system level that breaks the existing pattern of international relations and forces a cyclical reversion to figure 4 ``Pre-A'' behavior. As we are currently in the second great Globalization phase, a reversion here would signal a return to 1930s style economic nationalism. Here, endpoint ``B'' would be significantly delayed and perhaps obviated completely by a new perceived endpoint for a lengthy period of history.

Figure 17. Frequency of Threats and Crisis--

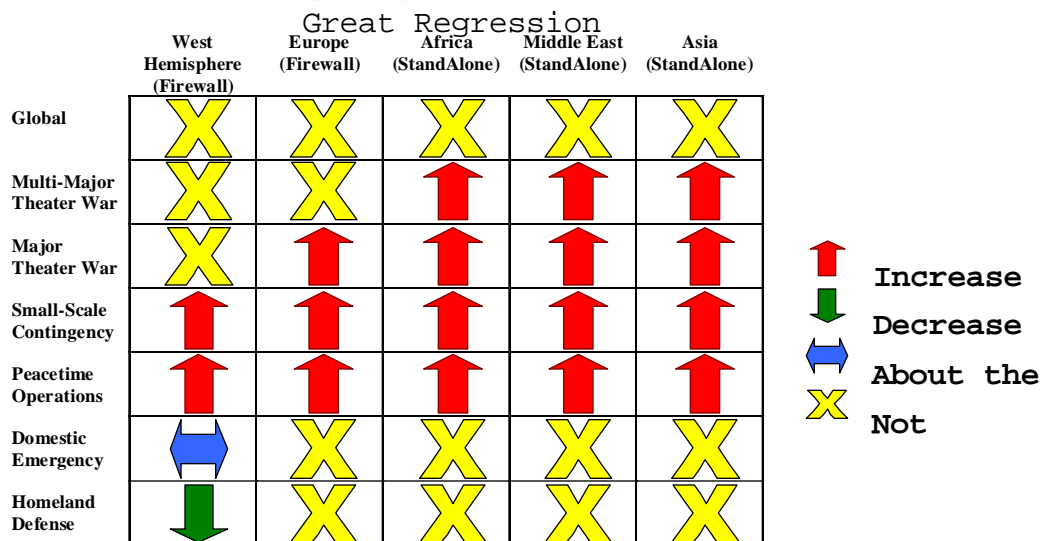
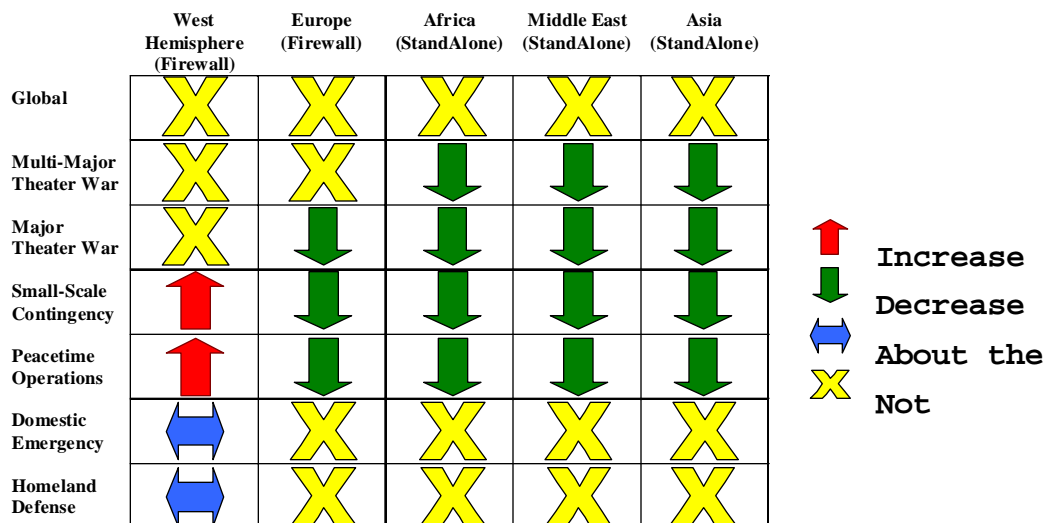


Figure 18. Likelihood of US Military Response--Great Regression



Linking mega-scenarios to U.S. National Security Strategy

Master Grid of Mega-Scenarios

Figure 19 below presents a Master Grid of Mega-Scenarios that links the four across ten key indicators:

1. Degree of global change
2. Global evolution pathway (cited above in Figure 10) and international relations expert(s) often associated with this view
3. Global pathway (cited above) and mega-scenario (cited above in Figure 9)
4. Waltz ``image'' level where threats to international security are most likely to emerge (see Annex A)
5. Likely key system challenger, political ideological stripe (color) and major tool of change employed
6. U.S. domestic paradigm, political force likely to dominate, and driving political force of change
7. U.S. security policy and ``face'' of globalism that is presented to out-side world⁵
8. U.S. Military force structure focus (major parameter for acquisition)

⁵ See Berger, ``Four Faces of Global Culture,'' passim.

9. U.S. Military operational focus

10. Proposed non-lethal focus

Master Grid of Mega-Scenarios explained in greater detail

Degree of change

We differentiate between ``system stability'' and three levels of instability corresponding to Waltz's ``three images.''

Global evolution path and expert

Evolutionary paths are explained in the previous section. Thomas Friedman (*Lexus and the Olive Tree*) reflects the pro-globalization camp. Robert Kaplan (*Ends of the Earth*) represents the anti-globalization camp. Samuel Huntington (*Clash of Civilizations*) reflects the camp that defines future international conflict in the collective nation-state format (blocs). A variety of economic worrywarts (e.g., Paul Krugman on occasion, Robert Reich on occasion, and Jeffrey Sachs on occasion) and anyone who calls for ``reform'' of the global economic system basically falls into the camp of those who are concerned with potential system instability.

Global pathway/mega-scenario

Previously explained in the text.

Threats level

In the *Best vs. Rest/Network.org* mega-scenario, all of the threats congregate in the peripheries both within the Network of advanced states (the ``incompetents'' within the populations) and outside the Network (``failed states'' of 21st Century). In the other three mega-scenarios, the threat level corresponds to the Waltzian level of instability.

Key challenger/political stripe and tools

o *Ghandi-After-Next* refers to the Next Belief System that arises to challenge the networked, IT-driven, globalized New Economy paradigm. White indicates its pacifist, non-violent promotion of new ideas.

o *Lenin-After-Next* refers to the Next Economic Ideology that likewise arises to challenge the New Economy paradigm, albeit in a more politicized (Red equals socialism) and violent manner.

o *Ayatollah-After-Next* refers to the Next Cultural Ideology that arises to challenge the New Economy paradigm, with a focus on an anti-Western, anti-technology life-style (Green) more attuned to local customs. It is likewise "defended" in a violent manner (jihadis).

o *Hitler-After-Next* refers to the potential for a system instability to open up opportunities for "strong solutions" in the manner of fascism (brown) and the return of inter-state warfare.

Figure 19. Linking mega-scenarios to U.S. National Security

Degree of Change	Global Evolution Path & Expert	Global Pathway/ Mega-Scenario	Threats Level	Key Challenger /Political Stripe & Tools	US Domestic Paradigm/ Political Spectrum	US Security Policy/ Face of Globalism	US Military Force Structure Focus	US Military Operat'l Focus	NLT Focus
System Stability	No Disruptions Straightline Path Friedman	<i>Network.org</i> path <i>Best vs. Rest</i> mega-scenario	Peripheries	<i>Ghandi-After-Next</i> White Ideas	Long Boom Center-Left New Faiths	<i>Six Admin</i> Force Davos culture	Platform Numbers to protect Speed & Presence	Cop on the Beat Shape the Enviro	Detect & Capture
Sub-National Instability	Horizontal Disruptions Path Sped Up Kaplan	<i>WildWildWeb.com</i> path <i>Eastern Open</i> mega-scenario	Individuals & Small Groups	<i>Lenin-After-Next</i> Red Terrore	T-Rex Economy Center-Right New Faultlines	<i>Killer Apps</i> Force McWorld culture	RMA to protect Inevitability & High-Tech	SWAT Triage Worst Cases	Locate & Incapacitate
Nation-State Instability	Vertical Disruptions Path Altered Huntington	<i>Firewall.gov</i> path <i>Bend of History</i> mega-scenario	Rogue & Hegemonic States	<i>Ayatollah-After-Next</i> Green Jihadis	New Tribalism Far Left New Rules	<i>Firewall</i> Force Faculty Club culture	Warfighting to protect Overwhelming & Surge	Squad Car Enforce the Rules	Differentiate & Isolate
System Instability	Architectural Disruptions Path Disjuncture Economic Fatalists	<i>Standalone.mil</i> path <i>Great Regression</i> mega-scenario	System Perturbations	<i>Hitler-After-Next</i> Brown Wars	New Protectionism Far Right/ New Rulers	<i>Homeland Defense</i> Force Missionary culture	Missiles & Space to protect Invulnerability & Counter-WarID	Border Guards Keep It Out Of Here	ID & Repel

Strategy

US domestic paradigm/political spectrum

o *Long Boom* refers to the continuation of the New Economy "Gold-locks" model (not too hot, not too cold). Judging by the Clinton Administration and the imitators it has spawned around the world, this is likely to go hand-in-hand with a Center-Left political orientation. The search for New Faiths would drive the political agenda (making the country "better").

o *T-Rex Economy* refers to the harshest aspects of the winner-takes-all New Economy. A Center Right coalition is more associated with this form of *laissez faire* capitalism, and it would probably come to power via "wedge issues" (New Faultlines).

o *New Tribalism* refers to social engineering designed to correct the flaws of the New Economy. A Far Left coalition is required for this ambitious agenda, with plenty of New Rules resulting.

o *New Protectionism* refers to a Far Right version of New Tribalism, with private-sector focus on ameliorating social ills caused by the New Economy. Privatizing of many government services equals New Rulers.

US security policy/face of globalism

o *Sys Admin Force* is the U.S. Military trying to run the world by dealing with all levels of instability. The *Davos* globalization culture refers to a world run by economically-oriented elites (refers to Davos-based World Economic Forum).

o *Killer Apps Force* is the U.S. Military pursuing the RMA in a big fashion out of fear that others (notably, China) are close behind. The hands-off approach to global conflicts, saving ourselves for the "real threats," promotes the spread of the *McWorld* globalization culture (American culture unopposed and unfiltered).

- o *Firewall Force* is the U.S. Military maintaining a Cold War-era warfighting focus on big wars and adopting a surge mentality. The *Faculty Club* globalization culture refers to our tendency to lecture others on behavior and—occasionally—to break into situations (Yugoslavia) to enforce our views.

- o *Homeland Defense Force* is the U.S. Military going into isolationist mode. Here we'd leave the spread of U.S. culture to private NGOs and PVOs (*Missionary* focus).

US Military force structure focus

Key choice is what attribute you most want to protect:

- o *Speed*--respond to every crisis quickly (*Best vs. Rest*)

- o *Inevitability*--respond to important crises with the assurance that we cannot be stopped (*Eastern Open*)

- o *Overwhelming*--hewing to the notion that we must size ourselves by the 2-Major Theater War standard (*Bend of History*)

- o *Invulnerability*—going back to the temptation of seeking WMD security in a world system that refused the notion (*Great Regression*).

US Military operational focus

- o *Cop on the Beat* refers to being everywhere, interacting with every-one, and trying to manage a little bit of every situation.

- o *SWAT* refers to picking and choosing our fights, and only coming in when the locals can't handle it.

- o *Squad Car* refers to rolling in only after ''crimes'' have been committed and doing so with top-flight power projection capabilities.

- o *Border Guards* reflects the isolationist tendency to want to stop "other people's problems at our borders."

Non-lethal focus

- o *Detect & Capture* refers to the paradigm of finding and hunting down challengers to the system that exist on or in the peripheries of the Network.

- o *Locate & Incapacitate* refers to the Network-Centric notions of being able to "control" an enemy and stop aggressive actions before they begin.

- o *Differentiate & Isolate* refers to the containment focus on "rogue powers."

- o *ID & Repel* refers to the shield focus of Homeland Defense.

Conclusions and Recommendations

This Annex has defined, detailed and depicted the methodology used by the study group in developing the operational context and demonstrated the linkage to the pathways presented in the Alternative Futures.

The futures pathways were developed using the Scenario Planning Methods while the the entire spectrum of threats and crises and the 20 specific types of military operations were based largely on past operational experiences, complemented by a review of doctrinal materials. .

The results depicted in this Annex are based on the assumptions that the Alternative Futures pathways will occur as detailed above. Detail information on how the Alternative Futures where developed are provided in Annex A.

The analysis served several purposes as stated in the Summary Report:

- Focused on the full range of threat and crises rather than treating all smaller contingencies as less included cases of the Two MTW planning Construct. This is important when examining non-lethals which apply in all contingencies.
- The disciplined approach explicitly captured assumptions, making the analysis traceable and repeatable.
- The broad, top down approach made it less likely that key factors would be missed in the methodology, *Operational Context*.

For each of the four Mega-scenarios, the study group examined and assessed the frequency of different types of threats and crises and the likelihood of a U.S. response in different geographic regions of the world .

Within the U.S. military as a whole, the future development and employment of non-lethals will be necessary to meet operational requirements.

Linking the Mega-scenarios to the U.S. National Security Strategy demonstrates where the focus will be in U.S. military force structure, operational requirements, and non-lethals to meet future needs for each of the Alternative Futures.

**Annex C:
Military
Tasks**

Annex C: Military Tasks

Purpose

The purpose of this annex is to present additional details from the study of future use of non-lethals, focusing on the analysis of tasks.

This annex begins with a brief overview of the study, which includes a description of where the work on tasks fits into the overall methodology. The following section presents some of the study's detailed results¹.

Study overview

The study as a whole, examined if, where, and how non-lethals might contribute to future military operations.

The study's methodology

The study group applied a methodology whose foundation had four pillars—alternative futures, operational context, tasks, and technologies—and two-way connections between pillars. We examined threats and crises that might emerge, determined the Joint and Service tasks performed in different military operations, and assessed technologies' potential capabilities vs. task requirements. Figure 1 provides an illustration.

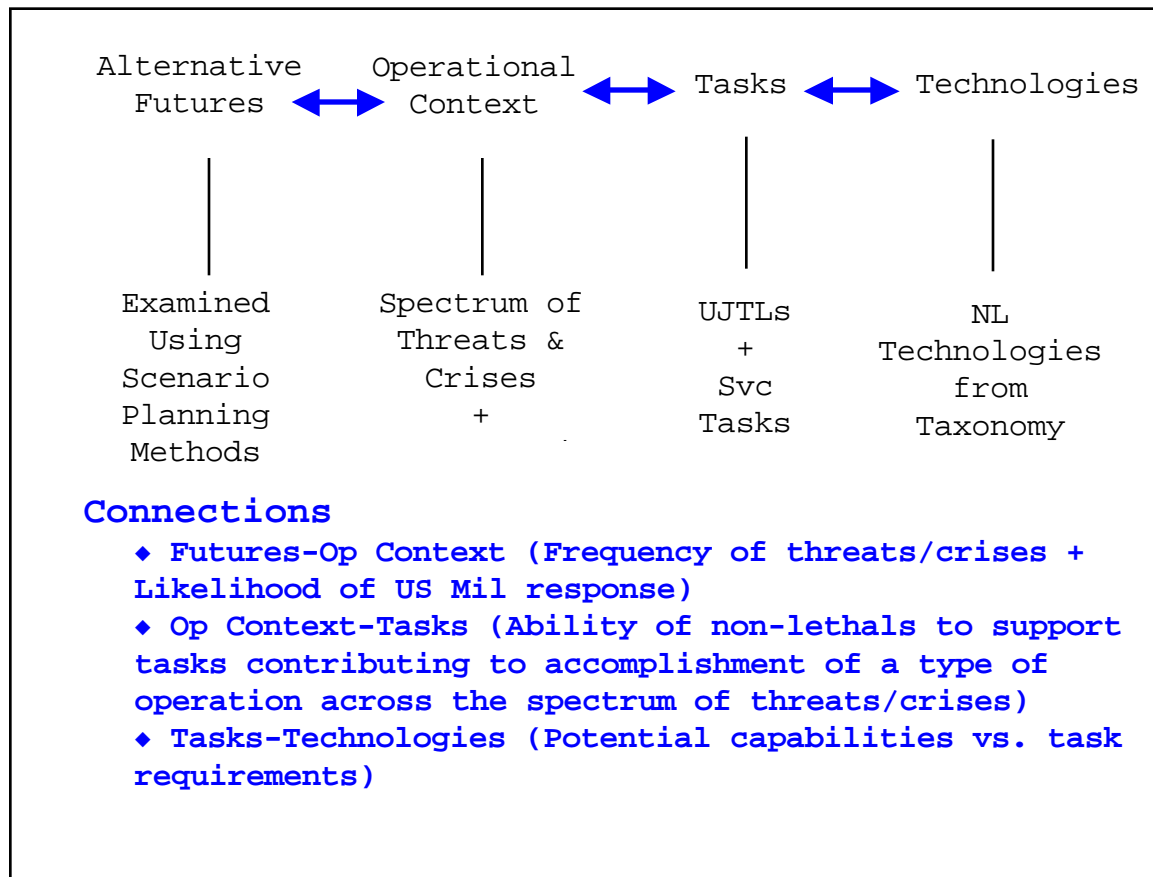
This methodology explicitly examines:

- Different alternative future pathways—which may affect the frequency of threats and crises across different geographic regions and the likelihood of U.S. military involvement

¹ This study has separate annexes covering alternative futures, operational context, tasks (this annex), and technologies.

- The entire spectrum of threats and crises²—from Domestic Emergencies through Global War—and specific types of military operations based largely on past operational experience
- All tasks from the Universal Joint Task List (UJTLs) and Service task lists.
- The potential abilities of non-lethal technologies to accomplish tasks

Figure 1. Illustration of the study's methodology



Key study results

Applying this detailed approach, we identified where and how non-lethals could contribute. Lethal weapons clearly form the core of the nation's arsenal, and they will continue to do so. Non-lethals can, however, offer valuable

² This terminology is derived from the current National Security Strategy

complementary capabilities. And there are selected areas where they could offer advantages or unique opportunities relative to lethals. Table 1 lists some of these areas. Not surprisingly, the greatest number of opportunities exists at the lower end of the spectrum of conflict. But opportunities exist—including all of the items in the table—even at the Major Theater War (MTW) level.

Table 1. Important opportunities for non-lethals

Key areas where non-lethals offer significant or unique advantages relative to lethals	Non-lethal technologies potentially applicable to these tasks
Creation or enhancement of a target's signature	<ul style="list-style-type: none"> ▪ Taggants/Markers
Counter-mobility and area denial effects (with reversibility of effects)	<ul style="list-style-type: none"> ▪ Calmatives ▪ Malodorants ▪ Entanglements ▪ Reactants
Degrading WMD production and delivery systems (Non-lethals could reduce the risk of NBC release)	<ul style="list-style-type: none"> ▪ Electromagnetic ▪ Reactants ▪ Bio-degrading microbes
Deception (Affect—positively or negatively—perceptions)	<ul style="list-style-type: none"> ▪ Obscurants ▪ Optical technologies
Breaching (Facilitate movement and maneuver over and through barriers obstacles, and mines)	<ul style="list-style-type: none"> ▪ Barrier foams
Capture individuals for Intel purposes	<ul style="list-style-type: none"> ▪ Counter-personnel technologies
Protect forces and facilities	<ul style="list-style-type: none"> ▪ Most of the non-lethal taxonomy

In addressing the fundamental question—*Can non-lethals contribute to future military operations?*—the answer is **Yes**.

With respect to where and how they can contribute:

- Non-lethals apply across the hierarchy of tasks—strategic, operational, and tactical levels
- Non-lethals have major applications not just for Force Protection but also for Movement/Maneuver and Employing Forces/Fires, with fewer applications for ISR and C2.

- Non-lethals can not only complement lethals but also, for some tasks, offer advantages or unique contributions. This is true across the spectrum of threats and crises including MTW and higher, although it is true for an increasing number of tasks at the lower end of the spectrum.

Analysis of tasks

All of the tasks came from either the Universal Joint Task List or Service tasks. The number of UJTLs and Service tasks totals 1457. These tasks are organized into a hierarchy of four levels: Strategic National (SN), Strategic Theater (ST), Operational (OP), and Tactical (TA). The Tactical-level tasks are the Army Tactical (ART), Air Force Tactical (AFT) and Naval Tactical (NTA) tasks.

A careful review of the tasks revealed eight categories:

- Mobilize, deploy, move and maneuver forces
- Conduct Intelligence, Surveillance & Reconnaissance (ISR)
- Employ forces and fires
- Sustain, support, and provide logistics/CSS to forces
- Provide direction, integration, and command and control
- Support force development and readiness
- Promote multi-national and inter-agency relations
- Provide force protection

For this set of tasks, we examined every non-lethal technology against each task's requirements in a given operational context. For each task, we used criteria to determine whether a given technology could fully, largely, partially, minimally, or could not support task accomplishment³. We examined the connection between tasks and operational context, starting with a look at the potential applicability of non-lethals (and lethals) to each individual task.

³ Annex D presents the detailed results from connecting technologies to tasks.

Potential applicability of non-lethals (and lethals)

In our analysis of tasks, we identified where non-lethals were potentially applicable. In some cases, tasks explicitly indicated the actual use of non-lethals (or lethals) in the task description. Many tasks—all of the tasks associated with information processing or force sustainment, for example—would not involve the actual use of lethals or non-lethals in the accomplishment of the task. For other tasks, we examined all possible operational contexts to determine whether application of non-lethals would support task accomplishment in any operational context. From this, we identified about 360 tasks where non-lethals are potentially applicable.

The next series of tables (tables 2-7) summarizes the potential applicability of non-lethals and lethals at different levels of the task hierarchy.

Table 2. Potential applicability of non-lethals and lethals to Strategic National (SN) tasks

Task	Potential Applicability of non-lethals	Potential Applicability of lethals
SN 1.1 + 5 sub-tasks	0/6	0/6
SN 1.2 + 8 sub-tasks	0/9	0/9
SN 2.1 + 5 sub-tasks	0/6	0/6
SN 2.2 + 2 sub-tasks	0/3	0/3
SN 2.3 + 3 sub-tasks	0/4	0/4
SN 2.4 + 9 sub-tasks	0/10	0/10
SN 2.5 + 2 sub-tasks	0/3	0/3
SN 2.6	0/1	0/1
SN 3.1 + 5 sub-tasks	0/6	0/6
SN 3.2 + 5 sub-tasks	0/6	0/6
SN 3.3 + 5 sub-tasks	3/6	3/6

SN 3.4 + 10 sub-tasks	5/10	5/10
SN 3.5 + 3 sub-tasks	1/4	1/4
SN 4.1 + 2 sub-tasks	0/3	0/3
SN 4.2 + 8 sub-tasks	0/9	0/9
SN 4.3 + 3 sub-tasks	0/4	0/4
SN 4.4	0/1	0/1
SN 4.5	0/1	0/1
SN 5.1 + 4 sub-tasks	0/5	0/5
SN 5.2 + 4 sub-tasks	0/5	0/5
SN 5.3 + 8 sub-tasks	0/9	0/9
SN 5.4 + 4 sub-tasks	0/5	0/5
SN 5.5	1/1	1/1
SN 5.6	0/1	0/1
SN 6.1 + 5 sub-tasks	0/6	0/6
SN 6.2 + 4 sub-tasks	0/5	0/5
SN 6.3 + 4 sub-tasks	0/5	0/5
SN 6.4 + 3 sub-tasks	0/4	0/4
SN 6.5 + 5 sub-tasks	0/6	0/6
SN 6.6 + 7 sub-tasks	0/8	0/8
SN 6.7	0/1	0/1
SN 7.1 + 4 sub-tasks	0/5	0/5
SN 7.2 + 4 sub-tasks	0/5	0/5
SN 7.3 + 5 sub-tasks	0/6	0/6
SN 7.4 + 4 sub-tasks	0/5	0/5
SN 7.5	0/1	0/1
SN 8.1 + 9 sub-tasks	4/10	4/10
SN 8.2 + 4 sub-tasks	4/5	4/5
SN 8.3 + 4 sub-tasks	0/5	0/5

Table 3. Potential applicability of non-lethals and lethals to Strategic Theater (ST) tasks

Task	Potential Applicability of non-lethals	Potential Applicability of lethals
ST 1.1 + 9 sub-tasks	0/10	0/10
ST 1.2	0/1	0/1
ST 1.3 + 8 sub-tasks	4/9	4/9
ST 1.4	0/1	0/1
ST 1.5 + 2 sub-tasks	3/3	3/3
ST 1.6 + 4 sub-tasks	5/5	5/5
ST 2.1 + 4 sub-tasks	0/6	0/6
ST 2.2 + 2 sub-tasks	2/3	0/3
ST 2.3 + 3 sub-tasks	0/4	0/4
ST 2.4 + 9 sub-tasks	0/10	0/10
ST 2.5 + 2 sub-tasks	0/3	0/3
ST 2.6	0/1	0/1
ST 3.1 + 3 sub-tasks	0/4	0/4
ST 3.2 + 6 sub-tasks	5/7	1/7
ST 4.1	0/1	0/1
ST 4.2 + 8 sub-tasks	0/9	0/9
ST 4.3 + 5 sub-tasks	0/6	0/6
ST 4.4 + 4 sub-tasks	0/5	0/5
ST 5.1 + 5 sub-tasks	0/6	0/6
ST 5.2 + 5 sub-tasks	0/6	0/6
ST 5.3 + 8 sub-tasks	0/9	0/9
ST 5.4 + 5 sub-tasks	0/6	0/6
ST 5.5 + 2 sub-tasks	2/3	2/3
ST 5.6 + 3 sub-tasks	0/4	0/4
ST 6.1 + 6 sub-tasks	3/7	3/7
ST 6.2 + 17 sub-tasks	10/18	10/18
ST 6.3 + 5 sub-tasks	0/6	0/6

ST 6.4 + 3 sub-tasks	3 / 4	3 / 4
ST 7.1 + 6 sub-tasks	0 / 7	0 / 7
ST 7.2 + 3 sub-tasks	0 / 4	0 / 4
ST 8.1 + 4 sub-tasks	*	*
ST 8.2 + 12 sub-tasks		
ST 8.3 + 4 sub-tasks		
ST 8.4 + 5 sub-tasks		
ST 8.5 + 4 sub-tasks		

Table 4. Potential applicability of non-lethals and lethals to Operational (OP) tasks

Task	Potential Applicability of non-lethals	Potential Applicability of lethals
OP 1.1 + 3 sub-tasks	0/4	0/4
OP 1.2 + 15 sub-tasks	13/16	13/16
OP 1.3 + 3 sub-tasks	3/4	2/4
OP 1.4 + 4 sub-tasks	5/5	5/5
OP 1.5 + 4 sub-tasks	6/6	5/6
OP 2.1 + 4 sub-tasks	0/5	0/5
OP 2.2 + 2 sub-tasks	2/3	0/3
OP 2.3 + 3 sub-tasks	0/4	0/4
OP 2.4 + 8 sub-tasks	0/9	0/9
OP 2.5 + 2 sub-tasks	0/3	0/3
OP 2.6	0/1	0/1
OP 3.1 + 10 sub-tasks	0/11	0/11
OP 3.2 + 14 sub-tasks	9/15	14/15
OP 4.1	0/1	0/1
OP 4.2	0/1	0/1
OP 4.3	0/1	0/1
OP 4.4 + 11 sub-tasks	0/12	0/12
OP 4.5 + 4 sub-tasks	0/5	0/5
OP 4.6 + 6 sub-tasks	0/7	0/7
OP 4.7 + 6 sub-tasks	0/7	0/7
OP 5.1 + 7 sub-tasks	0/8	0/8
OP 5.2 + 3 sub-tasks	0/4	0/4
OP 5.3 + 9 sub-tasks	0/10	0/10
OP 5.4 + 5 sub-tasks	0/6	0/6
OP 5.5 + 6 sub-tasks	0/7	0/7
OP 5.6 + 3 sub-tasks	3/4	3/4
OP 5.7 + 7 sub-tasks	0/8	0/8

OP 5.8 + 3 sub-tasks	0 / 4	0 / 4
OP 6.1 + 8 sub-tasks	4 / 9	4 / 9
OP 6.2 + 13 sub-tasks	9 / 14	8 / 14
OP 6.3 + 4 sub-tasks	1 / 5	1 / 5
OP 6.4 + 3 sub-tasks	2 / 4	2 / 4
OP 6.5 + 5 sub-tasks	6 / 6	6 / 6

Table 5. Potential applicability of non-lethals and lethals to Naval Tactical (NTA) tasks

Task	Potential Applicability of non-lethals	Potential Applicability of lethals
NTA 1.1 + 11 sub-tasks	3/12	2/12
NTA 1.2 + 15 sub-tasks	0/16	0/16
NTA 1.3 + 8 sub-tasks	8/9	7/9
NTA 1.4 + 14 sub-tasks	10/15	8/15
NTA 1.5 + 16 sub-tasks	17/17	17/17
NTA 2.1 + 4 sub-tasks	0/5	0/5
NTA 2.2 + 4 sub-tasks	2/5	0/5
NTA 2.3 + 2 sub-tasks	0/3	0/3
NTA 2.4 + 11 sub-tasks	0/12	0/12
NTA 2.5 + 2 sub-tasks	0/3	0/3
NTA 3.1 + 5 sub-tasks	0/6	0/6
NTA 3.2 + 14 sub-tasks	15/15	12/15
NTA 3.3	1/1	1/1
NTA 3.4	1/1	1/1
NTA 3.5	1/1	1/1
NTA 4.1 + 3 sub-tasks	0/4	0/4
NTA 4.2 + 5 sub-tasks	0/6	0/6
NTA 4.3 + 9 sub-tasks	0/10	0/10
NTA 4.4 + 16 sub-tasks	0/17	0/17
NTA 4.5 + 6 sub-tasks	0/7	0/7
NTA 4.6 + 7 sub-tasks	0/8	0/8
NTA 4.7 + 10 sub-tasks	0/11	0/11
NTA 4.8 + 2 sub-tasks	0/3	0/3
NTA 4.9 + 4 sub-tasks	0/5	0/5
NTA 4.10 + 3 sub-tasks	0/4	0/4
NTA 4.11 + 6 sub-tasks	0/7	0/7
NTA 4.12 + 12 sub-tasks	0/13	0/13

NTA 4.13	0 / 1	0 / 1
NTA 5.1 + 11 sub-tasks	0 / 12	0 / 12
NTA 5.2 + 5 sub-tasks	0 / 6	0 / 6
NTA 5.3 + 17 sub-tasks	0 / 18	0 / 18
NTA 5.4 + 13 sub-tasks	0 / 14	0 / 14
NTA 5.5 + 5 sub-tasks	4 / 5	3 / 5
NTA 5.6	1 / 1	1 / 1
NTA 5.7	1 / 1	1 / 1
NTA 5.8 + 3 sub-tasks	0 / 4	0 / 4
NTA 5.9	0 / 1	0 / 1
NTA 6.1 + 11 sub-tasks	9 / 12	7 / 12
NTA 6.2 + 4 sub-tasks	4 / 5	4 / 5
NTA 6.3 + 9 sub-tasks	10 / 10	9 / 10
NTA 6.4	0 / 1	0 / 1

Table 6. Potential applicability of non-lethals and lethals to Army Tactical (ART) tasks

Task	Potential Applicability of non-lethals	Potential Applicability of lethals
ART 1.1 + 9 sub-tasks	0/10	0/10
ART 1.2 + 44 sub-tasks	43/45	43/45
ART 1.3 + 13 sub-tasks	9/14	6/14
ART 1.4 + 7 sub-tasks	5/8	5/8
ART 2.1	0/1	0/1
ART 2.2 + 9 sub-tasks	2/10	0/10
ART 2.3 + 14 sub-tasks	0/15	0/15
ART 2.4	0/1	0/1
ART 2.5	0/1	0/1
ART 3.1 + 14 sub-tasks	0/15	0/15
ART 3.2 + 2 sub-tasks	2/3	2/3
ART 3.3 + 9 sub-tasks	6/10	4/10
ART 3.4 + 2 sub-tasks	2/3	2/3
ART 4.1 + 4 sub-tasks	0/5	0/5
ART 4.2 + 3 sub-tasks	0/4	0/4
ART 4.3 + 10 sub-tasks	0/11	0/11
ART 4.4 + 33 sub-tasks	0/34	0/34
ART 4.5 + 6 sub-tasks	0/7	0/7
ART 4.6 + 13 sub-tasks	0/14	0/14
ART 4.7 + 9 sub-tasks	0/10	0/10
ART 4.8 + 16 sub-tasks	0/17	0/17
ART 4.9 + 10 sub-tasks	0/11	0/11
ART 4.10 + 4 sub-tasks	0/5	0/5
ART 4.11 + 2 sub-tasks	0/3	0/3
ART 4.12	0/1	0/1
ART 5.1 + 14 sub-tasks	0/15	0/15
ART 5.2 + 22 sub-tasks	0/23	0/23

ART 5.3 + 13 sub-tasks	0/14	0/14
ART 5.4 + 7 sub-tasks	2/8	2/8
ART 6.1 + 19 sub-tasks	3/20	7/20
ART 6.2 + 18 sub-tasks	7/19	4/19
ART 6.3 + 10 sub-tasks	3/11	2/11
ART 6.4 + 5 sub-tasks	6/6	2/6
ART 6.5 + 7 sub-tasks	8/8	8/8
ART 6.6 + 4 sub-tasks	2/4	2/4
ART 6.7	1/1	0/1
ART 6.8	1/1	0/1
ART 6.9 + 2 sub-tasks	3/3	0/3
ART 6.10 + 3 sub-tasks	3/4	3/4

Table 7. Potential applicability of non-lethals and lethals to Air Force Tactical (AFT) tasks

Task	Potential Applicability of non-lethals	Potential Applicability of lethals
AFT 1.1 + 6 sub-tasks	4/7	4/7
AFT 1.2 + 6 sub-tasks	4/7	4/7
AFT 2.1 + 4 sub-tasks	0/5	2/5
AFT 2.2 + 4 sub-tasks	2/5	0/5
AFT 2.3 + 4 sub-tasks	2/5	2/5
AFT 3.1 + 33 sub-tasks	15/34	8/34
AFT 4.1 + 6 sub-tasks	4/7	4/7
AFT 4.2 + 8 sub-tasks	6/9	6/9
AFT 4.3 + 7 sub-tasks	5/8	5/8
AFT 4.4 + 4 sub-tasks	2/5	2/5
AFT 5.1 + 4 sub-tasks	0/5	0/5
AFT 5.2 + 4 sub-tasks	0/5	0/5
AFT 5.3 + 4 sub-tasks	0/5	0/5
AFT 5.4 + 4 sub-tasks	0/5	0/5
AFT 6.1 + 37 sub-tasks	0/38	0/38
AFT 6.2 + 8 sub-tasks	3/9	3/9
AFT 6.3 + 24 sub-tasks	0/25	0/25
AFT 6.4 + 9 sub-tasks	0/10	0/10
AFT 6.5 + 9 sub-tasks	0/10	0/10
AFT 6.6 + 24 sub-tasks	0/25	0/25
AFT 6.7 + 7 sub-tasks	0/8	0/8
AFT 7.1 + 6 sub-tasks	0/7	0/7
AFT 7.2 + 6 sub-tasks	0/7	0/7
AFT 7.3 + 5 sub-tasks	0/6	0/6
AFT 7.4 + 2 sub-tasks	2/3	2/3

The next table presents a summary of the data on potential applicability across the levels of the hierarchy and across the eight categories of tasks.

Table 8. Potential applicability of non-lethals across UJTLs and Service tasks

	Move/ Maneuver	ISR	Employ Forces/ Fires	Sustain/ Log/CSS	Direction/ C2	Force Dev/ Readiness	Multinatl/ IA	Force Protection
SN	0/51	0/28	10/33	0/19	1/27	0/23	*	—
ST	13/30	2/27	4/11	0/22	2/35	0/12	*	17/36
OP	28/36	2/26	15/27	0/35	3/52	—	—	23/39
NTA	39/70	2/29	19/25	0/97	6/62	—	—	24/29
ART	58/78	0/29	11/32	0/123	2/60	—	—	38/77
AFT	0/21	16/35	32/61	3/116	2/24	—	—	—

Table. Non-lethal contributions across the spectrum of threats and crises

Task	MTW or Greater		SSC		Peacetime Operations		Domestic Emergencies		Homeland Defense	
	Lethals apply /NLS complement	Unique contributions or advantages	Lethals apply /NLS complement	Unique contributions or advantages	Lethals apply /NLS complement	Unique contributions or advantages	Lethals apply /NLS complement	Unique contributions or advantages	Lethals apply /NLS complement	Unique contributions or advantages
SN 3.3	3	1	2	2	2	1	—	—	0	1
SN 3.4	7	0	7	0	6	1	6	1	7	0
SN 5.5	0	1	0	1	0	1	0	1	0	1
ST 1.5	2	1	0	3	0	3	—	—	1.5	1.5
ST 1.6	5	0	5	0	1	4	—	—	2.5	2.5
ST 2.2	0	2	0	2	0	2	—	—	0	2
ST 3.2	2	4	2	4	2	4	—	—	—	—
ST 5.5	0	3	0	3	0	3	0	3	0	3
ST 6.1	4	0	4	0	4	0	—	—	4	0
ST 6.2	8	2	8	2	0	10	—	—	8	2
ST 6.4	0	3	0	3	0	3	0	3	0	3
OP 1.2	12	0	10	2	0	12	—	—	6	6
OP 1.3	1	1	1	1	1	1	—	—	1	1
OP 1.4	4	1	0	5	0	5	0	5	2.5	2.5
OP 1.5	5	1	5	1	1	5	—	—	2	3
OP 3.2	8.5	5.5	8.5	5.5	0.5	13.5	—	—	8.5	5.5
OP 5.6	0	4	0	4	0	4	0	4	0	4
OP 6.1	5	0	5	0	4	1	—	—	5	0
OP 6.2	4	4	3	5	0	5	—	—	3	5
OP 6.3	0	1	0	1	0	1	—	—	0	1
OP 6.4	0	2	0	2	0	2	0	2	0	2
OP 6.5	4.5	1.5	4.5	1.5	0	6	0	3	3.5	0.5

Tasks that support the Operational Context within the Threats/Crises

Task Database

As mentioned above, the Spectrum of Threats and Crises were divided into seven different levels, from the low end (Domestic Emergencies) to the high end (Global War). Within each of the different levels of the spectrum, 20 different types of operations were analyzed as the likelihood and significance of the operation within the spectrum as presented in Annex B in Figures 2 through 8. Depicted above were the specific number of tasks and subtasks, Joint and Service, that provided opportunities for non-lethal technologies.

Appendix 1 (Operational Context)⁴, to this Annex, is a database that was developed by the study group for displaying, reviewing and examining the ability of non-lethals technologies to support tasks that contribute to accomplishment of a specific type of military operation, within the spectrum of Threats and Crises. Appendix 1 was developed as a web site database since many of the same Universal Joint Tasks and Service Tasks support each of the different types of operations. Additionally, the exact description of the tasks and subtasks can be reviewed or examine as to its application within the different types of operations. The Tab A (Tasks), on an excel spreadsheet, is an integral part of Appendix 1. It provides a sequential listing of all the Joint and Service tasks that were found to have opportunities for employments of non-lethals.

⁴ Appendix 1 (Operational Context) to Annex C lists the Threat/Crises to types of operations and associated Joint and/or Service task(s). A UJTLS WEB MATERIAL, Presentation (opens web data), and Tab A (Tasks) in an excel spreadsheet are included in this Appendix.

Additionally, the study group developed a database from the list of Universal Joint task list and each Service task list that were found to have opportunities for employment of non-lethal technologies. Appendix 2 (UJTls Database)⁵ to this Annex C contains this Microsoft Access Database. Appendix 2 database allows for the insertion of keywords (i.e terrorism, countermobility) or the actual task number to give the reader the exact content of the task(s) from the Universal Joint or Service task list. This is extremely beneficial and useful in identifying the task to technology connection. Specific information on this connection is detailed in Annex D.

Changes in Joint Universal Tasks and Service Tasks

The methodology of ``strategy to task to technology'' used by the study group is traceable and repeatable whenever changes occur in the spectrum of threat and crises, types of operations, tasks or technologies. If the types of tasks change or new tasks are identified, that are required to be accomplished by a the Joint Force Commander and/or a Service, the tasks can be analyzed as to the ability of non-lethals to support or contribute to task(s) successful accomplishment. Changes in technologies or new technologies are detailed in Annex D.

Conclusions

Applying the ``strategy-to-task-to-technology'' detailed approach, the study group identified where and how non-lethals could contribute at each specific type of operation.

⁵ Appendix 2 (UJTls Database) to Annex C lists all Joint and Service tasks that were found to have Non-lethal opportunities. Used in with both the Operational Context of this Annex and with Appendix 1 (Task to Technology) to Annex D.

All of the tasks came from either the Universal Joint Task List or Service tasks. The number of UJTLs and Service tasks totals 1457. As detailed above and described in Appendix 1 to this Annex, at least 25 percent of the tasks have been found to provide opportunities where non-lethals can support, complement or accomplish the requirements levied by the task(s).

Lethal weapons clearly form the core of the nation's arsenal, and they will continue to do so. Non-lethals can, however, offer valuable complementary capabilities. And there are selected areas where they could offer advantages or unique opportunities relative to lethals.

The greatest number of opportunities for non-lethals exists at the lower end of the spectrum of conflict. But opportunities exist—including all of the items in the table—even at the Global and Major Theater War (MTW) level.

Task #	Subtask	Tab A-Tasks (Description of Task) to Appendix 1 (Operational Context) to Annex C (Military Tasks)
SN 3.3		Apply National Strategic Firepower. To apply all available means and systems of attack for strategic effect. This task includes attacking a selected series of enemy targets at strategic depth, to progressively destroy, disintegrate, or degrade the enemy's strategic forces, national C2 facilities, other critical targets such as BW and CW production and delivery systems, warmaking capacity, and their will to make war. Strategic attack refers to any type attack on strategic targets, to include nuclear and conventional, both lethal and nonlethal.
SN 3.3	3	Demonstrate National Military Capabilities. To conduct exercises or other show of force demonstrations to display national strategic military capabilities in order to influence world perceptions of US potential and resolve to meet NCA specified strategic end state.
SN 3.3	4	Apply National Nonlethal Capabilities. To attack in order to affect, modify, neutralize or destroy strategic level enemy targets worldwide and in space using nonlethal means.
SN 3.4		Protect Strategic Forces and Means. To safeguard friendly strategic center(s) of gravity, strategic force potential, and CONUS base (includes the civil populace and industrial capacity of the nation) by reducing or avoiding the effects of enemy strategic-level actions and unintentional friendly actions. This task includes protection during strategic deployment of forces.
SN 3.4	1	Provide Strategic Air Defense. To protect strategic forces and the vital national assets from attack by air. This task involves integrating national and multinational surveillance, detection, identification, tracking, and interception systems. Strategic air defense includes the use of aircraft, air defense missiles, air defense artillery, nonair defense assets in an air defense role, and electronic warfare against all air threats including aircraft, air-to-surface missiles, and cruise missiles. This task centers on the protection of national centers
SN 3.4	10	Protect the National Sea Frontiers. To protect the seaward approaches to the United States and ensure the safety of maritime operations and the environment. This task includes protecting coastal shipping from attack. It also includes developing and implementing measures to prevent marine pollution or toxic waste spills ashore with the potential to disrupt defense operations, adversely impact national economies, or do significant environmental damage. To ensure hazardous materials are removed and properly disposed of without further damage to the environment. The environmental portions of this task can be executed in support of combat operations in a theater
SN 3.4	3	Provide Strategic Ballistic Missile Defense. To protect strategic forces and national assets from ballistic missile attack. This task involves integrating national and multinational surveillance, detection, identification, tracking, and interception systems to counter a ballistic missile attack. This task centers on the protection of national centers of gravity, critical facilities, strategic reserves, population centers, and industrial capacity
SN 3.4	7	Provide Security for Strategic Forces and Means. To enhance freedom of strategic action by reducing friendly vulnerability to hostile acts, influence, or surprise. This task includes counterintelligence actions designed to protect friendly forces from surprise, observation, detection, interference, terrorism, espionage, sabotage,
SN 3.4	8	Provide for Nuclear Surety. To provide for the safety, security, and weapon level use and control of nuclear weapons, and for the confidence in and reliability of the enduring nuclear weapon stockpile. This task includes monitoring and assessing current nuclear weapons programs and procedures and providing recommendations for improvements to current nuclear weapons programs and procedures.
SN 3.4	9	Support Personnel Recovery Worldwide. To provide national policy and support for the peacetime and wartime recovery of isolated personnel and to provide support to their families. This task includes reporting, locating, supporting the person and their family, recovery and return of the isolated person to their family or duty. This support includes developing national-level policy, plans, and strategic direction to military support missions requiring national and interagency coordination, such as special operations support to unconventional assisted recovery mechanism (UARM) and other recovery methods. It also includes setting worldwide standards for survival, escape, resistance, and escape (SERE) training. Included within this task are civil search and rescue, combat search and rescue (CSAR), and evasion and escape. DOD components provide search and rescue (SAR) facilities for

Task #	Subtask	Tab A-Tasks (Description of Task) to Appendix 1 (Operational Context) to Annex C (Military Tasks)
SN 5.5		Coordinate Worldwide Information Warfare (IW). To integrate the elements of offensive and defensive IW such as physical destruction, military deception, psychological operations, electronic attack, operations security, and other IW capabilities in order to affect an adversary's information, information-based processes, and information systems while defending one's own. This task includes military support to attacking and defending IW aspects of
SN 8.1		Support Other Nations or Groups. To provide assistance to other nations or groups (counterinsurgencies or insurgencies) in support of the national security, national military, and theater strategies across the range of military operations. This task includes foreign military sales, joint and combined exercises and operations, military assistance programs, combating terrorism, counterdrug operations, nation assistance, and civil-military operations (CMO). CMO activities involve the relationship between military forces, civilian authorities, and the population, and the development of favorable emotions, attitudes, or behavior in neutral, friendly, or hostile groups. CMO activities include assisting the host nation's development, undermining insurgent grievances, gaining support for national government, and attaining national objectives without combat. These include, medical,
SN 8.1	3	Support Peace Operations. To support peace operations through national level coordination of the three general areas; diplomatic action, traditional peacekeeping, and forceful military actions. This task can include coordination with international organizations and regional groupings. This task may include support to non-US forces, including training and the providing of equipment and transportation. This can include action under the UN
SN 8.1	5	Provide for Foreign Humanitarian Assistance and Conduct Humanitarian and Civic Assistance. To provide assistance to relieve or reduce the results of natural or manmade disasters or other endemic conditions such as human pain, disease, hunger, or privation that might present a serious threat to life or that can result in great damage to or loss of property. Foreign humanitarian assistance provided by US forces is generally limited in scope and duration. The foreign assistance provided is designed to supplement or complement the efforts of host nation civil authorities or agencies that may have the primary responsibility for providing relief, dislocated civilian support, security, and technical assistance. Humanitarian and civic assistance (HCA) is a specific and distinct program which is also included in this task. HCA generally includes activities such as medical, dental, and veterinary care; construction of rudimentary surface transportation systems; well drilling and construction of
SN 8.1	8	Provide Support to Foreign Internal Defense in Theater. To work with US agencies and the representatives of foreign governments to provide programs, through the combatant commander and the country team, to support action programs to free and protect the foreign nation's society from subversion, lawlessness, and insurgency.
SN 8.2		Provide DOD/Government-Wide Support. To provide specified support to other DOD/government agencies. Support to combatant commanders includes supporting the combatant commanders' unique personnel and equipment requirements. This support could be to government agencies responsible for supporting and assisting US states and citizens or, in accordance with US laws, foreign states requiring assistance. Types of support include intelligence, logistic, C4
SN 8.2	2	Support Other Government Agencies. To support non-DOD agencies (e.g., DOS, USAID, USIA). Support includes disaster relief, control of civil disturbances, counterdrug operations, combating terrorism, noncombatant evacuation, and building a science and technology base.
SN 8.2	3	Support Evacuation of Noncombatants from Theaters. To provide for the use of military and civil, including HNS, resources for the evacuation of US dependents and US Government civilian employees and private citizens (US and third nation). Noncombatant evacuation includes providing various support (e.g., health services, transportation,
SN 8.2	4	Assist Civil Defense. To assist other Federal agencies and State governments in mobilizing, organizing, and directing the civil population in order to minimize the effects of enemy action or natural and technological disasters on all aspects of civil life. This task includes passive measures, such as moving into shelters.
ST 1.5		Conduct Strategic Countermobility. To delay, channel, or stop offensive air, land, space, and sea movement by an enemy formation attempting to achieve concentration for strategic advantage. It also includes actions to shape, at the strategic level, enemy retrograde operations to allow friendly exploitation.

Task #	Subtask	Tab A-Tasks (Description of Task) to Appendix 1 (Operational Context) to Annex C (Military Tasks)
ST 1.5	1	Establish Strategic System of Barriers, Obstacles, and Mines. To channelize, delay, disrupt or attrite the enemy and protect friendly forces relative to employment of barriers, obstacles, and mines in support of land, maritime, and air operations. Strategic barriers, obstacles, and minefields normally are emplaced around an existing terrain feature (e.g., mountain chain or strait) or a manmade structure (e.g., air base, canal, highway, or bridge). Selecting locations and emplacing strategic land and maritime obstacles should be coordinated among multinational forces at all levels. This will preclude limiting friendly operational maneuver; conflicting, duplicative, or divergent operations; and possible fratricide among multinational forces. Plans that could impact on other theaters should be coordinated to prevent potential mutual interference. This is particularly important for
ST 1.5	2	Establish Sanctions, Embargo, or Blockade. To isolate a place, especially a port, harbor, or part of a coast, by ships or troops and aircraft to prevent entrance or exit and, thereby, deny an enemy support, commerce, reinforcement, or mobility, and/or reduce an adversary's internal political legitimacy. This task strips away as much of the enemy's support and freedom of action as possible, while limiting potential for horizontal or vertical escalation. It interferes with the enemy's ability to mass, maneuver, withdraw, supply, command, and reinforce combat power while it weakens the enemy economically, materially, and psychologically. This task serves to deny the enemy both physical and psychological support and may separate the enemy leadership and military from public
ST 1.6		Control or Dominate Strategically Significant Area(s). To dominate or control, in a theater, the physical environment (land, sea, air, and space) whose possession or command provides either side a strategic advantage. To control denies the area to the enemy by either occupation of the strategically key area or by limiting use or access to the environment or combat area by the enemy. For an environment to be strategically key, its control must achieve strategic results or deny same to the enemy. In military operations other than war, this activity
ST 1.6	1	Control Strategically Significant Land Area. To control strategically significant land area in order to facilitate the freedom of movement and action of forces. The objective is to allow land, sea, air, space, and special operations forces to conduct operations free from major interference from enemy forces based upon land areas. This task includes identifying and prioritizing critical areas and focusing efforts, during specific periods of time, when superiority must be established to ensure freedom of action for critical operations and
ST 1.6	2	Gain and Maintain Air Superiority in Theater of War. To conduct counterair operations sufficient to provide air superiority at the proper place and time to provide freedom of action for critical operations and protection of key assets. JFCs normally seek to secure air superiority early in the conduct of joint operations. This task attacks the enemy's warfighting capabilities in the air through offensive counterair (OCA), defensive counterair (DCA), anti-air warfare (AAW), air interdiction (AI) as well as strategic attack on enemy airpower capability.
ST 1.6	3	Gain and Maintain Maritime Superiority in Theater of War. To conduct the employment of forces for decisive engagement, attrition, containment, neutralization, or destruction of enemy maritime surface, subsurface, and air forces and their means of support in order to secure the desired degree of maritime superiority. This task attacks the enemy's warfighting capabilities in the maritime environment through antisubmarine warfare (ASW), AAW, DCA, AI, and traditional surface and subsurface warfare. Additionally, this task requires the coordination of barrier and blockade operations to deny enemy maritime forces access to open ocean areas and other maritime areas; offensive and defensive mining operations to restrict the freedom of movement of enemy maritime forces in areas such as
ST 1.6	4	Gain and Maintain Information Superiority in Theater of War/AOR. To achieve information superiority by affecting an adversary's information, information-based processes, and information systems, while defending one's own information, information-based processes, and information systems. This task is accomplished by integrating and exploiting the mutually beneficial effects of offensive IW and defensive IW operations.
ST 2.2		Collect Theater Strategic Information. To gather information from US and multinational strategic, operational, and tactical sources on strategic and operational threat forces and their strategic decisive points (and related high-payoff targets such as WMD production, infrastructure, and delivery systems). It also includes collection of information on the nature and characteristics of the assigned area of responsibility (including area of interest). Locating and reporting captured or isolated personnel falls under this task. This task applies in peace and war

Task #	Subtask	Tab A-Tasks (Description of Task) to Appendix 1 (Operational Context) to Annex C (Military Tasks)
ST 2.2	1	Collect Information on Theater Strategic Situation. To obtain strategically significant information on enemy (and friendly) force strengths and vulnerabilities, threat operational doctrine, and forces (land, sea, air, and space). This task includes collecting critical information on threats to and status of inter/intra-theater transportation infrastructures and PODs that could affect planning and execution of strategic airlift, sealift, and land movement. It also collecting information on the nature and characteristics of the area of interest, to include hazards, such as NBC contamination. This task includes collecting counterintelligence information. The nature and characteristics of the area include significant political, economic, industrial, geospatial (e.g., aeronautical, hydrographic, geodetic, topographic), demographic, medical, climatic, and cultural, as well as psychological profiles of the resident populations. Threat includes threat allies, and, in military operations other than war,
ST 3.2		Attack Theater Strategic Targets. To attack the enemy to destroy or neutralize strategic level targets and to shape and control the tempo of theater campaigns and joint operations, using all available joint and allied firepower assets against land, air (including space), and maritime (surface and subsurface) targets having
ST 3.2	2	Conduct Nonlethal Attack on Theater Strategic Targets. To engage strategic land, sea, air, and space (less air defense) targets with joint and multinational means designed to impair, disrupt, or delay the performance of enemy forces, activities, and facilities to achieve strategic results. These means include the use of psychological operations, special operations forces, chemical contamination of equipment and facilities, electronic attack, and other IW/C2W means. Nonlethal attack also includes employment of PSYOP activities as part of counterinsurgency efforts in military operations other than war. In these cases the objective is to foster favorable attitudes
ST 3.2	2.1	Conduct Theater Psychological Activities. To conduct theater-wide psychological activities to gain the support and cooperation of friendly and neutral countries and to reduce the will and the capacity of hostile or potentially hostile countries or groups to wage war (or insurgencies). Psychological operations (PSYOP) in support of theater strategic operations exploit vulnerabilities of foreign governments, military forces, and populations to advance broad or long-term national and theater strategic objectives. This task includes ensuring theater conformance with
ST 3.2	2.2	Conduct Theater Electronic Attack (EA). To conduct attacks involving the use of electromagnetic or directed energy, to impair, disrupt, or delay the performance of enemy forces, activities, and facilities, to achieve
ST 3.2	2.3	Attack Theater Information Systems. To employ offensive information warfare capabilities to achieve theater
ST 5.5		Coordinate Theater-Wide Information Warfare (IW). To integrate actions taken to achieve information superiority in support of national military strategy by affecting adversary information, information-based processes, information systems, and computer-based networks while defending one's own information, information-based processes, information systems, and computer-based networks. As a subset of IW, command and control warfare (C2W) is the integrated use of operations security, military deception, psychological operations, electronic attack, and physical destruction, mutually supported by intelligence, to deny information; to influence, degrade, or destroy
ST 5.5	1	Plan and Integrate Theater-Wide IW. To plan theater-wide IW operations, integrating military operations and non-DOD US government activities. Theater level IW planning and execution must also be coordinated and integrated with allied and coalition governments within the theater of operations. IW has applicability throughout the spectrum of conflict and supports the full range of military operations.
ST 6.1		Provide Theater Aerospace and Missile Defense. To protect theater forces from air attack (including attack from or through space) through both active defense and destruction of the enemy's air attack capacity en route to their targets. Theater aerospace defense includes aircraft (including helicopters), interceptor missiles, air defense artillery, non-air defense weapons in an air defense role, and electronic attack to counter enemy aircraft and missiles. This task concerns protecting critical points and facilities (ports, key bridges, theater of war command and control facilities) in the COMMZ (outside a theater of operations), support forces in such a COMMZ, and forces transiting such a COMMZ, or critical facilities of strategic significance in the combat zone. This activity also includes the protection of theater strategic force formations during movement to or when participating in a joint

Task #	Subtask	Tab A-Tasks (Description of Task) to Appendix 1 (Operational Context) to Annex C (Military Tasks)
ST 6.1	4	Provide Theater Air Defense. To integrate the combatant commander's forces to destroy or neutralize enemy offensive aircraft in order to protect friendly forces and vital interests. This task includes coordinating the use of all available air defense capabilities of friendly theater forces to achieve strategic results in the theater. It includes active measures such as the use of aircraft, air defense weapons, and weapons not normally used in an air defense role, as well as passive air defense measures such as warning, concealment, camouflage, and
ST 6.1	5	Provide Theater Missile Defense. To identify and integrate joint and multinational forces, supported by national and theater capabilities, to detect and destroy enemy theater missiles in flight or prior to launch. This task includes providing early warning of theater missile attack as well as distribution of this warning to joint, combined, and multinational forces within the theater. This task also includes activities to disrupt the enemy's theater missile operations through an appropriate mix of mutually supportive passive missile defense, active missile defense, attack operations, and supporting C3I measures. (The term "theater missile" applies to ballistic missiles, air-to-surface missiles, and air-, land-, and sea-launched cruise missiles whose targets are within a
ST 6.2		Provide Protection for Theater Strategic Forces and Means. To safeguard friendly strategic and operational centers of gravity and force potential by reducing or avoiding the effects of enemy and unintentional friendly actions (includes movement, NBC, and electronic warfare). In military operations other than war, this activity includes protecting government and civil infrastructure. This task includes protection of noncombatant evacuees prior to
ST 6.2	3	Protect Use of Electromagnetic Spectrum. To ensure friendly use of the electromagnetic spectrum despite the enemy's use of electronic warfare and friendly use of the spectrum. This is a division of electronic warfare and also called electronic protection. This task also includes deconflicting friendly use of the electromagnetic
ST 6.2	4	Provide Acoustic Protection. To ensure friendly, optimal use of the acoustic spectrum. This task includes acoustic warfare support measures and acoustic warfare counter-countermeasures.
ST 6.2	6	Provide Security for Theater Forces and Means. To enhance freedom of action by reducing the vulnerability of friendly joint forces to hostile acts, influence, or surprise. This task includes measures to protect forces from surprise, hostile observation, detection, interference, espionage, and sabotage. This activity also includes protecting and securing the flanks in joint operations and protecting and securing critical installations, facilities, systems and air, land, and sea LOCs. It includes antiterrorism to protect the morale of the force and
ST 6.2	6.2	Secure and Protect Theater Installations, Facilities, and Systems. To coordinate conduct of theater-wide efforts to protect theater installations, facilities and systems. This includes both active and passive measures and efforts to increase redundancy, either through conversion, construction or local procurement.
ST 6.2	6.3	Secure and Protect Theater Air, Land, and Sea LOCs. To coordinate the conduct of theater-wide offensive and defensive operations to ensure freedom of action along theater lines of communication. This effort includes not only the maintenance of existing LOCs, but also securing new LOCs, both for planned and for potential operations. When appropriate in a maritime theater, provide for convoys, circuitous routing, and zig-zag plans.
ST 6.2	7	Conduct Personnel Recovery in AOR. To initiate and coordinate programs for the peacetime and wartime recovery of isolated personnel and to provide support to their families. This task includes reporting, locating, supporting the person and their family, recovery and return of the isolated person to their family or duty. The designated Area SAR Coordinators are: Inland Area, USAF; Maritime Area, USCG; and Overseas Area, Appropriate combatant commander or Alaskan Air Command. DOD component SAR facilities are for component operations. These facilities may be used for civil needs on the basis of not-to-interfere with military missions. This task includes setting theater standards for survival, evasion, resistance, and escape (SERE) training based upon mission requirements.
ST 6.2	7.3	Provide Combat Search and Rescue. To provide for combat search and rescue (CSAR), primarily in support of flight operations, with capability to support other personnel recovery requirements. It also includes providing planning and guidance to subordinate organizations, including areas such as host nation policies, laws, regulations, and
ST 6.2	7.4	Support Evasion and Escape in AOR. To support isolated US personnel in evasion and recovery and captivity support and recovery. This task also includes those activities involved in supporting those isolated individuals who, due to unique circumstances, are effecting their own recovery.

Task #	Subtask	Tab A-Tasks (Description of Task) to Appendix 1 (Operational Context) to Annex C (Military Tasks)
ST 6.2	8	Establish NBC Defense in Theater. To defend against, detect, monitor, and reduce NBC threats. This includes warning and reporting of NBC threats. This task involves both threat reduction and implementation of readiness
ST 6.4		Conduct Deception in Support of Theater Strategy and Campaigns. To manipulate the enemy theater commander's perceptions in order to influence him to accomplish actions advantageous to friendly operations. The theater deception plan complements the combatant commander's operation plan. Deception can consist of concealment of friendly actions and intentions or it can be the projection of capabilities which do not exist in the time, place, or size depicted. Several measures are available to a combatant commander for conducting deception, to include
ST 6.4	1	Protect Details of Theater Strategy and Campaign Plans and Operations. To deny the enemy access to information on the true intent of the theater combatant commander's strategy and campaign plans, operation plans, and deception plans. This task includes limiting, to the last possible moment, the number of people aware of friendly plans; delaying or masking theater strategic movements and preparations; and deceiving friendly leaders and joint force
ST 6.4	2	Misinform Adversary Regarding Conduct of Theater Strategy, Campaigns, and Unified Operations. To develop and disseminate the deception plan, which includes the target and story. This task includes the actual execution of the deception plan at the theater level. The deception plan is focused on enemy expectations, preconceptions, and fears concerning friendly intent, in order to deceive the enemy commander of the true friendly intentions regarding the theater strategy and campaigns and joint operations. Deception plans will use the entire joint and
ST 6.4	2.3	Attack Theater Information Systems. To employ offensive information warfare capabilities to achieve theater
ST 8.2		Provide Support to Allies, Regional Governments, International Organizations or Groups. To provide support to friendly governments and organizations operating in the theater. Typically, that support includes intelligence, logistic, and C2 support, civil-military operations, security assistance, nation assistance, and other forms of support to further national objectives. This task can include support to domestic civil government.
ST 8.2	7	Assist in Restoration of Order. To halt violence and reinstitute peace and order. These activities are typically undertaken at the request of appropriate national authorities of a foreign state, or to protect US citizens. Therefore, these activities may be undertaken in cooperation with other countries or unilaterally by US forces.
ST 8.2	8	Support Peace Operations in Theater. To support peace operations in theater by effectively coordinating the interaction of military forces with political and humanitarian agencies involved in traditional peacekeeping operations, support of diplomatic actions, and forceful military actions. This task can include coordination with international organizations and regional groupings. Support Peace Operations in Theater. To support peace operations in theater by effectively coordinating the interaction of military forces with political and humanitarian agencies involved in traditional peacekeeping operations, support of diplomatic actions, and forceful
ST 8.2	8.1	Support Multilateral Peace Operations. To take action to preserve, maintain, or restore the peace. Such action is normally conducted under the authority of Chapters VI or VII of the UN Charter or by regional arrangements in accordance with Chapter VIII of the UN Charter.
ST 8.2	8.2	Conduct Peacekeeping. To deploy military or civilian personnel, or both, to assist in preserving or maintaining the peace. Such action is conducted with the consent of parties to the dispute and with a truce in place. Such actions are normally authorized by the United Nations under Chapter VI of the UN Charter. These traditionally are noncombat operations (except for the purpose of self-defense) and are normally undertaken to monitor and facilitate implementation of an existing truce agreement and in support of diplomatic efforts to achieve a lasting political
ST 8.4		Provide Theater Support to Other DOD and Government Agencies. To provide specified support to other combatant commands, DOD agencies and other governmental departments or agencies operating within the theater. Support could be to US governmental agencies assisting US or foreign citizens, on US territory or in foreign states, in accordance with US law. This support could include intelligence, logistic, medical, C4, and security support, counterdrug operations, combating terrorism, counterproliferation, and noncombatant evacuation operations (NEO).

Task #	Subtask	Tab A-Tasks (Description of Task) to Appendix 1 (Operational Context) to Annex C (Military Tasks)
ST 8.4	1	Advise and Support Counterdrug Operations in Theater. To support counterdrug operations through the establishment of theater joint task forces or elements of multi jurisdictional forces in support of law enforcement agencies (LEAs) and host nation (HN) forces. This include close coordination and direct liaison between the theater and LEAs and HNs. This task requires the integration and coordination of all of the different task categories of counterdrug support, including command, control, and communications (C3); intelligence, planning, logistic, and training. The task combines the combatant commander's unique counterdrug capabilities of detection and monitoring, with specific responsibility, under the FY 89 National Defense Authorization Act, to integrate the "command, control, communications and technical intelligence (C3I) assets of the US that are dedicated to the interdiction of
ST 8.4	2	Assist in Combating Terrorism. To produce effective protective measures to reduce the probability of a successful terrorist attack against theater installations. This task includes those defensive measures (antiterrorism) used to reduce vulnerability of individuals and property to terrorist acts, to include limited response and containment by local military forces. This task also includes those offensive measures (counterterrorism) taken to prevent,
ST 8.4	3	Coordinate Evacuation and Repatriation of Noncombatants from Theater. To use all available means, including commercial, theater military, host nation, and third country resources to evacuate US dependents, US Government civilian employees, and private citizens (US and third country) from the theater and support the repatriation of appropriate personnel to the US. Such operations are conducted in support of the Department of State. Theater organizations at various echelons provide support (for example, medical, transportation, security) to
ST 8.4	4	Counter Weapon and Technology Proliferation. To provide support to DOD and other governmental agencies to prevent/limit/minimize the introduction of weapons of mass destruction, new advanced weapons, and advanced weapon capable technologies to a region.
ST 8.4	5	Coordinate Military Support to Civil Authorities (MSCA) in the United States. To plan for and respond to domestic (inside the United States and its territories) requests for assistance from other U. S. governmental and state agencies in the event of civil emergencies such as natural and man-made disasters, civil disturbances and federal work stoppages. Other governmental agencies include such organizations as the Federal Emergency Management Agency (FEMA), the Environmental Protection Agency (EPA), the U. S. Coast Guard and state and local divisions of emergency
OP 1.2		Conduct Operational Maneuver. To maneuver joint and multinational operational forces to and from battle formations and to extend forces to operational depths to achieve a position of advantage over the enemy for accomplishing operational or strategic objectives.
OP 1.2	4	Conduct Operations in Depth. To conduct various types of operations to operational depths in achieving a position of advantage for the defeat or neutralization of enemy operational forces in order to accomplish operational or strategic objectives. This task includes conventional forces and SOF. This task can accommodate various types of operational maneuver, offensive or defensive. In Operation DESERT STORM against Iraq, there were several examples of OP 1.2.4, namely: the airpower phase of the campaign; the "Hail Mary" turning movement against the Republican Guard; and the US Marine Corps and multinational penetration in the east toward Kuwait.
OP 1.2	4.1	Plan and Execute Show of Force. To conduct an exhibition intended to demonstrate military resolve and capability to a potential belligerent to deter war or conflict This task could be providing for increased forward presence or employing assigned forces. An example of this task is conducting a force training exercise that coincides with a
OP 1.2	4.2	Plan and Execute Demonstration. To employ forces to create a diversion to draw the attention and forces of an adversary from the area of a major operation without an engagement. The demonstration may be staged to deceive the enemy. An example of a demonstration is the presence of Naval forces in the Persian Gulf off the Kuwait/Iraq littoral to divert Iraqi attention from planned land operations. This task includes the planning of branches and sequels involved if the action goes beyond a demonstration, either as a result of a changing situation or enemy
OP 1.2	4.3	Conduct Forcible Entry: Airborne, Amphibious, and Air Assault. To conduct operations to seize and hold a military lodgment in the face of armed opposition, to strike directly at enemy operational or strategic center(s) of gravity, or to gain access into a theater of operations/JOA or for introducing decisive forces into the region. A joint force may be tasked to do this by airborne, amphibious, and/or air assault in conjunction with other

Task #	Subtask	Tab A-Tasks (Description of Task) to Appendix 1 (Operational Context) to Annex C (Military Tasks)
OP 1.2	4.4	Reinforce and Expand Lodgment. To reinforce and expand the lodgment in a hostile or threatened territory to ensure the continuous air or sea landing of troops and materiel and provide the maneuver space necessary for projected operations. Normally, it is the area seized in the assault phase of an airborne, amphibious, or air assault
OP 1.2	4.5	Conduct Raids in JOA. To conduct raids into hostile territory. These activities are often small scale and designed for swift penetration to secure information, confuse the enemy, or destroy key installations. Coordinating the withdrawal of forces conducting raids is part of this task.
OP 1.2	4.6	Conduct Penetration, Direct Assault, and Turning Movements. To conduct offensive operation that seeks to break through the enemy's defense and/or disrupt the enemy defensive systems. The turning movement is a variation of envelopment in which the attacking force passes around or over the enemy's principle defensive positions to secure objectives deep into the enemy's rear to force the enemy to abandon his position or divert major forces to meet the
OP 1.2	4.7	Conduct Direct Action in JOA. To conduct short duration strikes and other small-scale actions by special operations forces in order to seize, destroy, capture, recover, or inflict damage on designated personnel or material. The purpose is to support the campaign plan. This task includes ambushes or direct assaults; the emplacement of mines and other munitions; standoff attacks; support for employment of precision guided weapons,
OP 1.2	4.8	Conduct Unconventional Warfare in Theater of Operations/JOA. To conduct military and paramilitary operations, normally of long duration, within the theater of operations/JOA. Included are guerrilla warfare and other direct offensive, low-visibility, covert or clandestine operations, as well as indirect activities of subversion and sabotage. This task also includes, when appropriate, integration and synchronization of indigenous and surrogate forces that are organized, trained, equipped, supported, and directed by an external source.
OP 1.2	5	Conduct Offensive Operations in Theater of Operations/JOA. To take the battle to the enemy. This task involves taking the initiative from the enemy, gaining freedom of action, and massing effects to achieve operational objectives. This task may be conducted with part of the joint force, while another part is conducting defensive or
OP 1.2	6	Conduct Defensive Operations in Theater of Operations/JOA. To counter the enemy's initiative, to defeat an enemy attack and prevent the achievement of enemy objectives. This task includes taking actions to gain time, to control key terrain or lines of communication in the theater of operations/JOA, or to protect forces, facilities, or locations. This task includes creating the conditions to allow the seizing of the initiative, to include eroding enemy resources at a rapid rate. This task may be conducted with part of the joint force, while another part is
OP 1.2	7	Conduct Retrograde Operations in Theater of Operations/JOA. To improve an operational situation or to prevent a worse one from occurring by maneuvering forces to the rear or away from the enemy. This task is executed to gain time, to preserve forces or to avoid combat under undesirable conditions or to draw the enemy into a more favorable condition for combat. This task may be conducted with part of the joint force, while another part is conducting defensive or offensive operations. This task includes such movements as withdrawal, retirement, or delaying
OP 1.3		Provide Operational Mobility. To facilitate the movement of joint and multinational operational formations in a campaign or major operation without delays due to operationally significant terrain or obstacles.
OP 1.3	1	Overcome Operationally Significant Barriers, Obstacles, and Mines. To preserve freedom of operational movement by counteracting the effects of natural (existing) and other (reinforcing) operationally significant barriers (i.e., WMD killing fields), obstacles, and mines. The creation of gaps in Saddam's barriers in southern Kuwait and Iraq opposite coalition forces in Operation DESERT STORM is an example of this task. Clearing the minefields on the sea approaches in the same operation is another example. Operationally significant barriers and obstacles include any obstruction designed or employed to disrupt, fix, turn, or block the movement of an operationally significant force. Obstacles can exist naturally or can be synthetic, or can be a combination of both. Examples of such barriers and obstacles include ports, transportation systems, major land formations (for example, mountain ranges),
OP 1.3	2	Enhance Movement of Operational Forces. To prepare or improve facilities (for example, airfields, landing zones) and routes (for example, roads, railroads, canals, rivers, ports, port facilities, airfields) for moving operational forces in support of campaigns and major operations.

Task #	Subtask	Tab A-Tasks (Description of Task) to Appendix 1 (Operational Context) to Annex C (Military Tasks)
OP 1.4		Provide Operational Countermobility. To delay, channel, or stop offensive air, land, and sea movement by enemy operational formations in order to help create positional advantage for friendly joint and multinational operational forces. Operational countermobility exposes enemy decisive points and centers of gravity or high-payoff targets to destruction in conformance with the joint force commander's plans and intent.
OP 1.4	1	Employ Operational System of Obstacles. To identify air, land, and sea sites for reinforcing or constructing obstacles to take maximum advantage of existing obstacles to form a system of obstacles (normally on a large scale) for operational effect. The system of obstacles is intended to provide friendly force flexibility for movement and increase the variety of obstacles the enemy must encounter. This task includes developing existing obstacles and reinforcing terrain with countermobility means (includes air, land, and sea). Systems of obstacles include, but are not limited to, minefields, ADM, and conventional demolitions for achieving operational results in campaigns
OP 1.4	2	Plan and Execute Sanctions/Embargo. To carry out acts designed to exclude specific items such as offensive military weapons and associated material from movement into or out of a state. This task includes the planning and execution of operational tasks and synchronization of tactical tasks which compose the sanctions.
OP 1.4	3	Plan and Execute Blockade. To take action to cut off enemy communications and commerce in order to isolate a place or region. This task includes complete blockades and lesser degrees of blockades. This task also includes the planning and execution of operational tasks and synchronization of tactical tasks which compose the blockade.
OP 1.4	4	Plan and Execute Maritime Interception. To develop plans and procedures to detect, classify, intercept, and board vessels suspected of smuggling drugs, other contraband, or refugees. This task includes the planning and execution of operational tasks and the synchronization of tactical tasks which impose the maritime interception.
OP 1.5		Control or Dominate Operationally Significant Area. To dominate or control the physical environment (land, sea, air, and space) whose possession or command provides either side an operational advantage, or denying it to the enemy. Denial of an operational area can be accomplished either by occupying the operationally key area itself or by limiting use or access to the area. For an area or environment to be operationally key, its dominance or control must achieve operational or strategic results or deny same to the enemy. In military operations other than war, control of an operationally significant area also pertains to assisting a friendly country in populace and
OP 1.5	1	Control Operationally Significant Land Area. To dominate an area or geographic point or position important to the success of a campaign or major operation to prevent enemy occupation of the position through fire, fire potential,
OP 1.5	2	Gain and Maintain Maritime Superiority in Theater of Operations/JOA. To achieve that degree of dominance in the sea campaign and major battles over opposing forces which permits the conduct of operations by friendly maritime forces and their related land, sea, air, and special operations forces at a given time and place without prohibitive interference by the opposing force in the theater of operations/JOA.
OP 1.5	3	Gain and Maintain Air Superiority in Theater of Operations/JOA. To gain control of the air to the degree which permits the conduct of operations by land, sea, and air forces at a given time and place without prohibitive interference by the opposing force in the theater of operations/JOA.
OP 1.5	4	Isolate Theater of Operations/JOA. To deny to a regional adversary or the adversary's supporters access to key sectors of the operational area and impede the adversary's movement of supplies by sea, land, and air from areas
OP 1.5	5	Assist Host Nation in Populace and Resource Control. To assist host nation governments to retain control over their major population centers thus precluding complicating problems which may hinder accomplishment of the joint force commander's mission. This task includes external support for control of civil unrest and restoration of basic public services (police functions, water, electricity, garbage, basic medical care) the lack of which would precipitate civil unrest. This task relates to providing civil affairs, military police, and logistic support for
OP 2.2		Collect Operational Information. To gather information from operational and tactical sources on operational and tactical threat forces and their decisive points (and related high-payoff targets such as WMD production, infrastructure and delivery systems). It also includes collection of information on the nature and characteristics of the assigned area of responsibility (including area of interest). Locating and reporting captured or isolated personnel falls under this task. In addition, collection of data to support combat assessment is included in this

Task #	Subtask	Tab A-Tasks (Description of Task) to Appendix 1 (Operational Context) to Annex C (Military Tasks)
OP 2.2	1	Collect Information on Operational Situation. To obtain operationally significant information on enemy (and friendly) force strengths and vulnerabilities, threat operational doctrine, and forces (land, sea, and air and space). Threat includes threat allies, and, in military operations other than war, insurgents, terrorists, illegal drug traffickers, belligerents in peace support or peace-enforcement situations, and other opponents. It also includes collecting information on the nature and characteristics of the area of interest, to include hazards, such as NBC contamination. The nature and characteristics of the area include significant political, economic, industrial, geospatial (e.g., aeronautical, hydrographic, geodetic, topographic), demographic, medical, climatic, and cultural, as well as psychological profiles of the resident populations. This task includes collecting counterintelligence information to protect against espionage, other intelligence activities, sabotage, or
OP 3.2		Attack Operational Targets. To engage operational level targets and to shape and control the tempo of campaigns using all available joint and multinational operational firepower (includes ground, naval, air, space, and SOF conventional and special munitions) against land, air, and maritime (surface and subsurface) targets having operational significance. Operational targets can be conventional or NBC (weapons of mass destruction) related.
OP 3.2	1	Attack Operational Land/Maritime Targets. To attack operational land and sea targets with available joint and multinational operational firepower delivery systems. To delay, disrupt, destroy, or degrade enemy operational forces or critical tasks and facilities (including C2I targets) and to affect the enemy's will to fight.
OP 3.2	2	Conduct Nonlethal Attack on Operational Targets. To engage operational land, sea, and air (less air defense) targets with nonlethal joint and multinational means designed to degrade, impair, disrupt, or delay the performance of enemy operational forces, tasks, and facilities. The means include the use of psychological operations, special operations forces, chemical contamination of equipment and facilities, electronic attack, and other IW
OP 3.2	2.1	Employ PSYOP in Theater of Operations/JOA. To plan and execute operations to convey selected information and indicators to foreign audiences in theaters of operation/joint operations area to influence their emotions, motives, objective reasoning, and ultimately the behavior of foreign governments, organizations, groups, and individuals. PSYOP actions are aimed at making the adversary leadership, military personnel, or population modify their behavior in ways that are favorable to US or allied/coalition efforts in the operation area. PSYOP consolidation activities are planned activities in war and military operations other than war directed at the civilian population located in areas under friendly control in order to achieve a desired behavior which supports the military objectives and the operational freedom of the supported commander. PSYOP activities are integrated
OP 3.2	2.2	Employ Electronic Attack (EA) in Theater of Operations/JOA. To employ electromagnetic or directed energy to attack personnel, facilities or equipment with the intent of degrading, neutralizing, or destroying enemy combat capability within the theater of operations/JOA. EA includes: 1) actions taken to prevent or reduce an enemy's effective use of the electromagnetic spectrum, such as jamming, and 2) employment of weapons that use either electromagnetic or directed energy as their primary destructive mechanism (lasers, radio frequency weapons,
OP 3.2	2.3	Employ Information Attack in Theater of Operations/JOA. To employ offensive information warfare capabilities to achieve operational objectives.
OP 3.2	2.4	Conduct Nonlethal Attack on Personnel, Equipment, and Installations. To conduct nonlethal attack against personnel, equipment, and installations to neutralize or degrade their combat capability or contribution. This task includes all forms of nonlethal attack not involving PSYOP, EA, and information based attacks.
OP 3.2	3	Attack Aircraft and Missiles (Offensive Counterair). To integrate and synchronize attacks on enemy offensive air capabilities through the depth of the operational area and beyond, where the targets fall within theater rules of engagement. This task seeks to gain control of the air and then to allow all friendly forces to exploit this
OP 3.2	4	Suppress Enemy Air Defenses. To coordinate, integrate, and synchronize attacks which neutralize, destroy, or temporarily degrade surface-based enemy air defenses by destructive and/or disruptive means.
OP 3.2	5	Interdict Operational Forces/Targets. To coordinate, integrate, and synchronize actions that divert, disrupt, delay, or destroy the enemy's military potential (forces, nodes, LOCs, networks, and infrastructures) before it can be used effectively against friendly forces conducting campaigns and major operations in an operational area.

Task #	Subtask	Tab A-Tasks (Description of Task) to Appendix 1 (Operational Context) to Annex C (Military Tasks)
OP 3.2	5.1	Conduct Air Interdiction of Operational Forces/Targets. To conduct air operations as part of the JFC's campaign or major operation to destroy, neutralize, or delay the enemy's military potential. Actions are conducted at such distance from friendly forces that detailed integration of each air mission with the fire and movement of friendly
OP 3.2	5.2	Conduct Surface/Subsurface Firepower Interdiction of Operational Forces/Targets. To conduct land or sea operations as part of the JFC's campaign or major operation to destroy, neutralize, or delay the enemy's military potential. Actions are conducted at such distance from friendly forces that detailed integration of each mission with the firepower and movement of friendly forces is not required.
OP 3.2	5.3	Conduct Special Operations Interdiction of Operational Forces/Targets. To conduct special operations throughout the theater of operations/JOA as part of the JFC's campaign or major operation to destroy, neutralize, or delay the enemy's military potential. Actions are conducted at such distance from friendly forces that detailed integration of each mission with the firepower and movement of friendly forces is not required.
OP 3.2	6	Provide Firepower in Support of Operational Maneuver. To support land and sea joint operational maneuver as part of the JFC's campaign or major operation plan by engaging operational land, sea, air, and space targets (air targets other than air defense, antiair, or defensive counter air targets) with available joint and multinational
OP 4.7		Provide Politico-Military Support to Other Nations, Groups, and Government Agencies. To provide assistance to other nations, groups, or government agencies that supports strategic and operational goals within a theater of operations and JOA. This task includes security assistance, civil military operations support (such as humanitarian assistance, environmental cleanup, disaster relief), and other assistance from military forces to civilian authorities and population. The assistance can be personnel, materiel, and/or services.
OP 4.7	2	Conduct CMO in Theater of Operations/JOA. To conduct activities in support of military operations in a theater of operations/JOA that foster the relationship between the military forces and civilian authorities and population, and that develop favorable emotions, attitudes, or behavior in neutral, friendly, or hostile groups. This task includes establishing a joint civil military operations center (CMOC). Activities included in CMO are civil affairs, military civic action, humanitarian assistance (includes disaster relief), humanitarian and civic
OP 4.7	3	Provide Support to DOD and Other Government Agencies. To provide support to DOD, Joint Staff, other Services, DISA, DLA, DSWA, DOS, USAID, USIA, civil governments, and other related agencies. This task includes controlling civil disturbances, countering illegal drugs, combating terrorism, and conducting joint exercises and operations.
OP 5.6		Employ Operational Information Warfare (IW). To integrate the use of operations security, military deception, psychological operations, electronic warfare, and physical destruction, mutually supported by intelligence, in order to deny information, influence, degrade, or destroy adversary information, information-based processes, and information systems, and to protect one's own against such actions. As a subset of IW, C2W is an application of IW
OP 5.6	1	Plan and Integrate Operational IW. To plan and integrate the offensive and defensive actions involving information, information-based processes, and information systems. This task includes the integration of such activities with the other elements of the campaign plan and major operations and their execution.
OP 5.6	2	Plan and Integrate Operational C2W. To plan and integrate IW actions to prevent effective operational command and control of adversary forces by influencing, degrading, or destroying their operational C2 system. This task includes protecting friendly C2 through a planned protection effort, integrated into subordinate campaign and major
OP 6.1		Provide Operational Aerospace and Missile Defense. To protect operational forces from air attack (including attack from or through space) by direct defense and by destroying the enemy's air attack capacity in the air. This task includes use of aircraft (including helicopters), interceptor missiles, air defense artillery, and weapons not used
OP 6.1	2	Integrate Joint/Multinational Operational Aerospace Defense. To implement an integrated air defense system from all available joint and multinational air, land, and naval operational defense forces (aircraft, missiles, ADA).
OP 6.1	4	Counter Enemy Air Attack in Theater of Operations/JOA. To intercept, engage, destroy, or neutralize enemy air formations in flight, using all available air-, land-, or sea-based air defense capabilities of the joint force to

Task #	Subtask	Tab A-Tasks (Description of Task) to Appendix 1 (Operational Context) to Annex C (Military Tasks)
OP 6.1	5	Conduct Operational Area Missile Defense. To identify and integrate joint and coalition forces supported by national and theater capabilities to detect and destroy enemy theater missiles directed toward the theater of operations/JOA in flight or prior to launch or otherwise disrupt the enemy's theater missile operations through an appropriate mix of mutually supportive passive missile defense, active missile defense, attack operations, and supporting C3I measures. This task includes providing early warning of theater missile attack to the theater of operations/JOA as well as distribution of this warning to joint and multinational forces within the operational area. The term "theater missile" applies to ballistic missiles, air-to-surface missiles, and air-, land-, and sea-
OP 6.2		Provide Protection for Operational Forces, Means, and Noncombatants. To safeguard friendly centers of gravity and operational force potential by reducing or avoiding the effects of enemy operational level, and unintentional friendly, actions (includes movement and electronic warfare). In military operations other than war, this activity includes protection of governmental and civil infrastructure and populace of the country being supported; this includes antiterrorism. This task includes supporting Department of State evacuation of noncombatants from areas
OP 6.2	1	Prepare Operationally Significant Defenses. To provide construction hardening for operational forces and key facilities to include C2, logistic rear area, assembly areas, and fighting positions.
OP 6.2	2	Remove Operationally Significant Hazards. To eliminate hazards that adversely affect execution of the operational level joint force commander's plan.
OP 6.2	3	Protect Use of Electromagnetic Spectrum in Theater of Operations/JOA. To ensure friendly effective use of the electromagnetic spectrum despite the enemy's use of electronic warfare and friendly use of the spectrum. This is a division of electronic warfare called electronic protection.
OP 6.2	4	Protect Use of the Acoustic Spectrum in Theater of Operations/JOA. To ensure friendly effective use of the acoustic spectrum by establishing procedures that prevent mutual interference between friendly units and counter
OP 6.2	6	Conduct Evacuation of Noncombatants from Theater of Operations/JOA. To use theater of operations military and host nation resources for the evacuation of US military dependents, US Government civilian employees, and private citizens (US and third country nationals). Organizations at various echelon provide support (medical, transportation, religious, security) to the noncombatants; the support provided is analyzed under the appropriate
OP 6.2	8	Establish NBC Protection in Theater of Operations/JOA. To ensure the detection, warning, and reporting of and protection against NBC threats in the operational area.
OP 6.2	9	Coordinate and Conduct Personnel Recovery. Provide for the support of isolated US military personnel and US civilians and other designated personnel within the theater of operations/JOA. This task includes reporting, locating, supporting the person and their family, recovery and return of the isolated person to their family or duty. The task further includes conducting civil and combat search and rescue missions and providing support to evasion and escape. To coordinate the use of aircraft, surface craft, submarines, specialized rescue teams and equipment, to include unconventional assisted recovery (UAR), for returning isolated personnel to US control.
OP 6.2	9.2	Provide Combat Search and Rescue. To provide for combat search and rescue (CSAR), primarily in support of flight operations, with capability to support other personnel recovery requirements. It also includes providing planning and guidance to subordinate organizations, including areas such as host nation policies, laws, regulations, and
OP 6.2	9.3	Support Evasion and Escape in JOA. To support isolated US personnel in evasion and recovery and captivity support and recovery. This task also includes those activities involved in supporting those isolated individuals who, due to unique circumstances, are effecting their own recovery.
OP 6.4		Conduct Deception in Support of Subordinate Campaigns and Major Operations. To manipulate enemy operational level commander's perceptions and expectations into a false picture of reality that conceals friendly actions and intentions until it is too late for enemy forces to react effectively within the context of the theater combatant commander's deception plan. Several measures are available for conducting deception, to include physical, technical or electronic (imitative, manipulative, and simulative), and administrative.

Task #	Subtask	Tab A-Tasks (Description of Task) to Appendix 1 (Operational Context) to Annex C (Military Tasks)
OP 6.4	2	Conduct Operational Deception. To prevent the enemy from learning the true intent of the joint force commander's campaigns and major operation plans and deception plans. This activity includes limiting, to the last possible moment, the number of people aware of friendly plans; delaying or masking operational movements and preparations; and deceiving friendly leaders and personnel where necessary.
OP 6.5		Provide Security for Operational Forces and Means. To enhance freedom of action by identifying and reducing friendly vulnerability to hostile acts, influence, or surprise. This includes measures to protect from surprise, observation, detection, interference, espionage, terrorism, and sabotage. This task includes actions for protecting and securing the flanks and rear area of operational formations, and protecting and securing critical
OP 6.5	1	Provide Counter-Reconnaissance in Theater of Operations/JOA. To provide counter-reconnaissance to prevent hostile observation of operational forces and operational area.
OP 6.5	2	Protect and Secure Flanks, Rear Areas, and COMMZ in Theater of Operations/JOA. To protect operational forces and means from attack throughout the operational area.
OP 6.5	3	Protect/Secure Operationally Critical Installations, Facilities, and Systems. To protect operationally critical installations, facilities, and systems from attack in the operational area.
OP 6.5	4	Protect and Secure Air, Land, and Sea LOCs in Theater of Operations/JOA. To protect the routes, land, water, and air, which connect an operating military force with a base of operations and along which supplies and military
OP 6.5	5	Integrate Host Nation Security Forces and Means. To integrate and synchronize host nation police, fire departments, military internal security forces, communications infrastructure, constabulary, rescue agencies, and penal institutions into the security plan for the operational area. This task includes the planning and execution of operational tasks which involve operations of two or more nations' forces including the forces of the host
NTA 1.3		Maintain Mobility. To maintain freedom of movement for ships, aircraft personnel, and equipment in the battlespace without delays due to terrain/weather (environmental effects) or barriers, obstacles, and mines.
NTA 1.3	1	Perform Mine Countermeasures. Detect, classify, mark, and disable mines using a variety of methods to include air, surface and subsurface assets.
NTA 1.3	1.1	Conduct Mine Hunting. Detect, locate, and mark mines which present a hazard to force mobility. The employment of sensor and neutralization systems, whether air, surface, or subsurface, to locate and dispose of individual mines. Minehunting is conducted to eliminate mines in a known field or desirable operating area, or to verify the presence
NTA 1.3	1.2	Conduct Minesweeping and Mine Neutralization. To eliminate hazards associated with mines by removing, rendering safe or detonating. To clear mines using either mechanical, explosive, or influence sweep equipment. Mechanical sweeping removes, disturbs, or otherwise neutralizes the mine; explosive sweeping causes sympathetic detonations, or damages, or displaces the mine; and influence sweeping produces either the acoustic and/or magnetic influence
NTA 1.3	2	Conduct Breaching of Minefields, Barriers, and Obstacles. To employ any means available to break through or secure a passage through an enemy defense, obstacle, minefield, or fortification. This enables a force to maintain its mobility by removing or clearing/reducing existing and man-made obstacles. Existing obstacles include natural and cultural features such as barrier reefs, rivers, mountains, and cities. Man-made obstacles, such as minefields, antitank ditches, drop blocks, surf obstacles and submarine nets are those added to the battlespace area by the enemy to strengthen the physical environment and extend existing obstacles. This task includes breaching
NTA 1.3	2.1	Mark Barriers and Obstacles. To fence or guard protective and tactical barriers or obstacles or contaminated areas in order to protect friendly forces and noncombatants.
NTA 1.3	2.2	Clear Minefields, Barriers, and Obstacles. To provide for clearance of barriers and obstacles from operations area, including designation of temporary routing corridors for shipping. To remove and/or neutralize non-lethal/less than lethal equipment and or substances to prevent interference with friendly/neutral forces and non-combatants after employment has been completed (includes removal of barriers, decontamination and release of
NTA 1.3	3	Enhance Movement. To enhance force mobility in the combat area by constructing, improving, and or repairing piers/wharves, combat roads and trails, bridges, ferries, forward airfields and landing sites/zones, and by facilitating movement on routes (road and air traffic control; refugee and straggler control). This task also

Task #	Subtask	Tab A-Tasks (Description of Task) to Appendix 1 (Operational Context) to Annex C (Military Tasks)
NTA 1.4		Conduct Countermobility. To delay, disrupt, fix, channel, block, or stop the enemy's offensive movement (both on sea and/or land) in order to destroy its forces directly or indirectly by enhancing the effectiveness of friendly
NTA 1.4	1	Conduct Mining. Use air, surface, and subsurface assets to conduct offensive (deploy mines to tactical advantage of friendly forces) and defensive (deploy mines for protection of friendly forces and harbors) mining operations.
NTA 1.4	2	Manage Barriers and Obstacles. Protect friendly forces through prudent use of barriers and obstacles.
NTA 1.4	2.2	Mark Barriers and Obstacles. To fence or guard protective and tactical barriers and obstacles or contaminated areas in order to protect friendly forces and noncombatants.
NTA 1.4	3	Detonate Mines/Explosives. To cause the explosion and the resulting destruction of enemy personnel, vehicles, aircraft, vessels (ships and submarines), obstacles, facilities, or terrain.
NTA 1.4	4	Conduct Blockade. To blockade designated areas in conjunction with US policy.
NTA 1.4	5	Conduct Maritime Interception. To intercept commercial, private or other non-defense or non-naval vessels by conducting Maritime Interception Operations (MIO). Through Visit, Board, Search and Seizure (VBSS) procedures on designated maritime shipping. Includes operations to support efforts to counter smuggling and/or resource exploitation (counter-drug and other contraband, alien migration, UN sanctions, arms, fisheries/living marine
NTA 1.4	6	Conduct Alien Migrant Interdiction Operations. To intercept alien migrants at sea and prevent their passage to US waters and territory.
NTA 1.4	7	Conduct Maritime Counter-Drug Operations. To coordinate with all applicable agencies to provide vessels and qualified boarding teams to intercept, board and search vessels suspected of smuggling drugs or other contraband. Boarding teams should have legal authority from host nation to conduct boardings within their territorial waters and/or authority from suspect vessel's flag state to board vessels outside territorial waters unless a consensual
NTA 1.4	8	Enforce Exclusion Zones. To use necessary means to deny use of an air or sea area to a designated force or forces.
NTA 1.5		Dominate the Combat Area. To dominate or control a land area, airspace, or sea space to prevent enemy or other force occupation or use of the combat area through fire, fire potential, or occupation.
NTA 1.5	1	Control or Dominate the Combat Area Through Combat Systems. To use combat systems or the threat of combat systems on or in a geographic area or ocean to prevent the enemy or other forces from occupying or using the area and permit friendly forces to occupy or use the area, including the introduction of amphibious forces. Dominate a land area, airspace, or sea space to prevent enemy or other force occupation or use of the combat area through fire,
NTA 1.5	1.1	Maneuver Naval Forces. To move available units, sensors, and combat systems into appropriate locations to conduct screening, attack, or provide battlespace dominance. Includes conducting ship to objective maneuver to gain a tactical advantage over the enemy in terms of both time and space. Characterized by decentralized control, the supported MAGTF maneuvers and seamlessly transitions ashore. The Maneuvered Force positions itself with the
NTA 1.5	1.2	Occupy Battlespace. To physically position forces on the seas, on the ground, or in the air, thus dominating these areas and preventing the enemy from doing so. It includes enforcing exclusion zones, occupying fighting or support positions, and control of specific sea lanes, choke points, and river waterways.
NTA 1.5	2	Conduct Surface Warfare. To establish and maintain surface supremacy in the operating area by engaging all hostile surface threats prior to their reaching maximum effective weapons release range.
NTA 1.5	3	Conduct Air Warfare. To establish and maintain air supremacy in assigned operating area through employment of both Offensive Counter Air and Defensive Counterair forces.
NTA 1.5	4	Conduct Undersea Warfare. To establish and maintain supremacy in assigned operating area through employment of assets to ensure freedom of action of friendly maritime forces in face of undersea threats such as submarines, mines, and underwater swimmers.
NTA 1.5	5	Conduct Strike Warfare. To plan, direct, and execute power projection strikes ashore to achieve required destruction. This includes all offensive operations against hostile land targets using all available resources
NTA 1.5	6	Conduct Amphibious Warfare. To conduct an attack launched from the sea by naval and landing forces, embarked in ships or craft involving a landing on a hostile or potentially hostile shore.

Task #	Subtask	Tab A-Tasks (Description of Task) to Appendix 1 (Operational Context) to Annex C (Military Tasks)
NTA 1.5	6.1	Conduct Ship to Objective Maneuver. To conduct ship to objective maneuver to gain a tactical advantage over the enemy in terms of both time and space. Maneuver is not aimed at the seizure of a beach, but builds upon the foundations of expanding the battlespace. Characterized by decentralized control, the supported MAGTF maneuvers and seamlessly transitions ashore. The Maneuvered Force positions itself with the necessary support to apply
NTA 1.5	6.2	Conduct an Amphibious Assault. To conduct an amphibious operation that involves establishing a force on a hostile or potentially hostile shore.
NTA 1.5	6.3	Conduct an Amphibious Demonstration. To employ amphibious forces for the purpose of deceiving the enemy by a show of force with the expectation of deluding the enemy into a course of action unfavorable to him.
NTA 1.5	6.4	Conduct an Amphibious Raid. To employ amphibious forces for the purpose of making a swift incursion into, or temporary occupation of, an objective followed by a planned withdrawal.
NTA 1.5	6.5	Conduct an Amphibious Withdrawal. To employ amphibious forces for the purpose of extracting other forces by sea in naval ships or craft from a hostile or potentially hostile shore.
NTA 1.5	7	Conduct Sustained Operations Ashore. To employ expeditionary forces in support of an ongoing campaign. This task includes offensive operations: movement to contact, hasty attack, deliberate attack, raid, pursuit, exploitation; defensive operations: position and mobile defense; close combat; and rapid reconstitution for subsequent
NTA 1.5	8	Conduct Naval Special Warfare. To employ forces that are specially trained, equipped, and organized to conduct special operations in the marine, coastal, and riverine environments.
NTA 1.5	9	Conduct Unconventional Warfare. To conduct military and paramilitary activities including guerrilla warfare and other direct offensive, low-visibility, covert or clandestine operations, as well as indirect activities of subversion and sabotage. This task also includes, when appropriate, integration and synchronization of indigenous and surrogate forces that are organized, trained, equipped, supported, and directed by an external source.
NTA 2.2		Collect Information. To gather intelligence data and information from national, theater, and tactical sources to satisfy the identified requirements. This includes information on threat forces and their decisive points (and related high-payoff/high-value targets such as WMD production, infrastructure, and delivery systems), and assessing damage to assigned targets. It also includes collection of information on the physical, military, and civil characteristics of the assigned area of responsibility (including area of interest). Locating and reporting captured or isolated personnel falls under this task. This task applies in peace and war and for military
NTA 2.2	1	Collect Target Information. To acquire information that supports the detection, identification, location, and operational profile of enemy targets in sufficient detail to permit attack by friendly weapons. The target acquisition system may be closed loop (an inherent part of friendly weapons system) or open loop (separate from the firing system but, nevertheless, part of the overall weapon system). Activities include searching, detecting, locating, identifying targets, and conducting post-attack battle damage assessment. This task includes optimizing the use of organic collection assets ISO Battle Damage Assessment for targeting cycle and re-strike assessment, in
NTA 2.2	2	Collect Tactical Intelligence on Situation. To obtain information that affects a commander's possible courses of action. Considerations include the characteristics of the area of operations and the enemy situation. Information includes threat, physical environment, health standards/endemic disease, and social/political/economic factors. This task also includes the reporting and locating of isolated or captured personnel.
NTA 3.2		Attack Targets. To engage the enemy and destroy targets using all available organic firepower. This task includes all offensive and defensive actions.
NTA 3.2	1	Attack Enemy Maritime Targets. To attack sea targets with the intent to degrade the ability of enemy forces to conduct coordinated operations and/or perform critical tasks. This task includes all efforts taken to control the battlespace by warfare commanders, strikes against High Payoff and High Value targets such as missile launching ships and submarines and other strike and power projection units throughout the theater, and efforts undertaken to

Task #	Subtask	Tab A-Tasks (Description of Task) to Appendix 1 (Operational Context) to Annex C (Military Tasks)
NTA 3.2	2	Attack Enemy Land Targets. To attack land targets with the intent to degrade the ability of enemy forces to conduct coordinated operations and/or perform critical tasks. This task includes all efforts taken to control the battlespace by warfare commanders, strikes against High Payoff and High Value targets such as C4I facilities/nodes and ammunition storage facilities throughout the theater, and efforts undertaken to undermine the enemy's will to
NTA 3.2	3	Attack Enemy Aircraft and Missiles (Offensive Counter Air). To integrate and synchronize attacks on enemy air capabilities throughout the engagement envelopes of organic systems. This task seeks to establish control of the airspace and then to allow all friendly forces to exploit this advantage.
NTA 3.2	4	Suppress Enemy Air Defenses (SEAD). To coordinate, integrate and synchronize attacks which neutralize, destroy, or temporarily degrade enemy air defenses by destructive and/or disruptive means.
NTA 3.2	5	Conduct Electronic Attack. To employ electromagnetic or directed energy to attack personnel, facilities, or equipment to degrade, neutralize, or destroy enemy combat capability. Includes actions taken to prevent or reduce enemy's effective use of the electromagnetic spectrum, such as jamming and anti-radiation missiles, misinformation,
NTA 3.2	6	Interdict Enemy Operational Forces/Targets. To apply air, ground-, and sea-based weapon systems to disrupt, divert, delay, destroy, suppress, or neutralize military and enemy equipment (including aircraft on the ground), materiel, personnel, fortifications, infrastructure, command and control and facilities before it can be
NTA 3.2	7	Intercept, Engage, and Neutralize Enemy Aircraft and Missile Targets (Defensive Counter Air). To intercept, engage, neutralize, or destroy enemy aircraft and missiles in flight. Includes disruption of the enemy's theater missile (ballistic missiles, air-to-surface missiles, and air-, land- and sea-launched cruise missiles) operations through an appropriate mix of mutually supportive passive missile defense, active missile defense, attack
NTA 3.2	8	Conduct Fire Support. To employ lethal fires against hostile targets which are in close proximity to friendly forces to assist land and amphibious forces to maneuver and control territory, populations, and key waters. Fire support can include the use of close air support (CAS) (by both fixed- and rotary-wing aircraft), naval surface fire support (NSFS), land based fire support, Special Operations Forces, as well as some elements of electronic
NTA 3.2	8.1	Engage Targets. To employ lethal fires against hostile targets. This task includes providing target locations, providing target descriptions, and specifying methods of fire.
NTA 3.2	8.2	Illuminate/Designate Targets. To illuminate targets by visible light, laser, or any other means to aid in designation and aid in controlling the guidance system of friendly ordnance.
NTA 3.2	8.3	Adjust Fires. To sense the strike of rounds on selected targets, determine adjustments, and report these adjustments to the firing units.
NTA 3.2	9	Conduct Nonlethal Engagement. To employ means designed to impair the performance of enemy personnel and equipment. This task includes employing incapacitating agents, deceptive maneuvers, battlefield psychological activities, electronic attack against enemy systems (jamming and weapons using electromagnetic or directed energy), and
NTA 5.5		Plan and Employ C2W. To integrate the use of operations security, military deception(MILDEC), psychological operations (PSYOP), electronic warfare, and physical destruction mutually supported by intelligence to deny information and to influence, degrade, or destroy adversary C2 capabilities, and to protect friendly C2 against such actions. Employing C2W includes two component activities%prevent or deny enemy effective C2 of adversary forces (also called C2 Attack) and maintain effective friendly C2 (also call C2 Protect).
NTA 5.5	3	Employ C2 Attack. Employ actions to prevent effective C2 of an adversary's forces by denying information to the enemy force and/or by influencing, degrading, or destroying the adversary's C2 system.
NTA 5.5	5	Perform Psychological Operations. To conduct planned operations to convey selected information and indicators to foreign audiences to influence their emotions, motives, objective reasoning, and ultimately the behavior of foreign governments, organizations, groups, and individuals.
NTA 5.6		Conduct Information Warfare. Actions taken to achieve information superiority by affecting adversary information, information-based processes, information systems, and computer-based networks while defending one's own information, information-based processes, information systems, and computer-based networks.

Task #	Subtask	Tab A-Tasks (Description of Task) to Appendix 1 (Operational Context) to Annex C (Military Tasks)
NTA 5.7		Conduct Acoustic Warfare. Action involving the use of underwater acoustic energy to determine, exploit, reduce, or prevent hostile use of the underwater acoustic spectrum and actions which retain friendly use of the underwater acoustic spectrum. This task includes acoustic warfare support measures, acoustic warfare countermeasures, and acoustic warfare counter-countermeasures. It includes development and execution of acoustic search plans.
NTA 6.1		Enhance Survivability. To protect personnel, equipment, ships, aircraft, supplies, areas, and installations from enemy and friendly systems and natural occurrences.
NTA 6.1	1	Protect Against Combat Area Hazards. To protect friendly forces in the battlespace by reducing or avoiding the effects of enemy weapons systems and sensors and friendly mutual interference or fratricide. To ensure friendly use of the underwater and acoustic environment with separation plans for (1) sonar frequencies and (2) towed sonar/arrays and subsurface forces. Includes providing safety to personnel, units, and equipment during operations
NTA 6.1	1.1	Protect Individuals and Systems. To use protective positions, measures, or equipment to reduce the effects of enemy and friendly weapon systems and to enhance force effectiveness. This activity physically protects a military unit, area, activity, or installation against acts designed to impair its effectiveness and to retain the unit's capability to perform its missions and tasks. It includes employing electronic protection, local security, observation posts, protective positioning of equipment, and protecting forces and populace from PSYOP attack. While moving, forces employ a variety of movement techniques designed to enhance protection (e.g., the use by maritime forces of convoys, circuitous routing, dispersal and defensive formations, and zigzag plans). Includes
NTA 6.1	1.2	Remove Battlespace Hazards. To eliminate the presence of hazards to equipment and personnel. This task includes decontamination and Explosive Ordnance Support (EOD) to include employing specialized demolition as required to provide for munitions clearance, safety and restoration.
NTA 6.1	3	Employ Operations Security. To deny adversaries information about friendly capabilities and intentions by identifying, controlling, and protecting indicators associated with planning and conducting naval operations. This task includes employing signals security and electronics security.
NTA 6.1	3.1	Employ Signals Security. To deny the enemy access to electronic/acoustic information (both communications and non-communications) that could be used to identify friendly capabilities and intentions.
NTA 6.1	6	Combat Terrorism Perform defensive and offensive measures to reduce vulnerability of individuals and property to terrorist acts. To prevent, deter, and respond to terrorism.
NTA 6.2		Rescue and Recover. Provide capability to rescue and recover both military and civilian personnel.
NTA 6.2	1	Evacuate Noncombatants from Area. To use available military and host-nation resources to evacuate US dependents, US Government civilian employees, and private citizens (US and third nation) from the area of operations. Includes providing temporary security augmentation to US government and US privately owned facilities ashore.
NTA 6.3		Provide Security for Operational Forces and Means. To enhance freedom of action by identifying and reducing friendly vulnerability to hostile acts, influence, or surprise. This includes measures to protect from surprise, observation, detection, interference, espionage, terrorism, and sabotage. This task includes actions for protecting and securing the flanks and rear area of operational formations, and protecting and securing critical installations, facilities, systems and air, land, and sea LOCs. It also includes protection of coastal areas,
NTA 6.3	1.2	Protect/Secure Operationally Critical Installations, Facilities, and Systems. To protect operationally critical installations, facilities, and systems from attack in the operational area.
NTA 6.3	1.3	Provide Harbor Defense and Port Security. Provide naval forces for the protection of vessels and port/waterfront facilities, including friendly forces within a designated geographic area, harbor and approaches, or anchorage, against external threats, sabotage and subversive acts, accidents, theft and negligence, civil disturbance and
NTA 6.3	2	Conduct Military Law Enforcement Support (Afloat & Ashore). To enforce military law and order and collect, evacuate, and intern enemy prisoners of war.
NTA 6.3	2.1	Manage Enemy Prisoners of War. To collect, process, evacuate, intern, safeguard, and transfer enemy prisoners of war and civilian internees.

Task #	Subtask	Tab A-Tasks (Description of Task) to Appendix 1 (Operational Context) to Annex C (Military Tasks)
NTA 6.3	2.2	Maintain Law and Order. To enforce laws and regulations and maintain the discipline of units and personnel. Includes performing counterdrug activities, combating terrorism, and assisting US civic authorities. This task includes law enforcement, criminal investigation, and military prisoner confinement.
NTA 6.3	2.3	Manage Refugees and Refugee Camps. To collect, process, evaluate, safeguard, house, and release refugees. This task may include determination of political asylum status.
ART 1.2		Conduct Tactical Maneuver. To move tactical organizations or units and their systems or in the battle space from one position to another in combination with direct and indirect fires - or threaten delivery of - in order to gain tactical, positional advantage over an enemy. Movement takes full advantage of terrain and formation and may be by any means. This function includes bypassing obstacles. Tactical maneuver includes various forms of conducting tactical offensive, defensive, and retrograde action and land interdiction. Forms of offense are movement to contact, attack, exploitation, pursuit, and forcible entry. Forms of defense are mobile, area defense, and
ART 1.2	2	Conduct Offensive Action. To take the initiative, gain freedom of action to allow swift transition from one action to another and to put the enemy at risk throughout the depth and space of the battlefield. To defeat, destroy or neutralize the enemy force by taking the fight to the enemy in such a way as to achieve decisive victory at least cost. Offensive tactical operations are continuous, not isolated, battles.
ART 1.2	2.1	Conduct Movement to Contact. To develop the situation and to establish or regain contact through offensive action. Movement to contact includes approach march, search and attack, meeting engagement, and action at contact.
ART 1.2	2.1.1	Conduct Approach March. To conduct a tactical movement that emphasizes speed over tactical deployment. It is used when the enemy's approximate location is known, allowing the attacking force to move with greater speed and less physical security or dispersion. The approach march terminates in an attack position, assembly area, or assault position or can be used to transition to an attack.
ART 1.2	2.1.2	Conduct Search and Attack. A variant of the movement to contact conducted by small, light maneuver units and air cavalry or air assault forces in large areas to destroy enemy forces, deny area to the enemy, or collect
ART 1.2	2.1.3	Conduct Meeting Engagement. To conduct a combat action that occurs when a moving force, incompletely deployed for battle, collides with and engages an enemy at an unexpected time and place. The enemy force may be either
ART 1.2	2.1.4	Conduct Actions on Contact. To develop the situation once contact is made, concentrate the effects of combat power, and transition to a hasty attack (or in some cases a hasty defense). Commander may choose to transition to a defense or to a deliberate attack. Whether attacking or defending, at the point combat forces collide, the commander must generate and sustain overwhelming combat power to rapidly defeat the enemy.
ART 1.2	2.2	Conduct Forcible Entry in AO. To seize and hold a tactical lodgement within AO, opposed or unopposed, to strike directly at an enemy's critical point, or to gain access into an AO and conduct decisive operations. Forcible entry into an area may be applicable for military operations other than war., e.g., secure an area for a
ART 1.2	2.2.1	Conduct Airborne, Air Assault, and/or Amphibious Assaults into AO. To conduct a combat assault into a drop or landing zone or onto a beach to seize a beachhead employing airborne, air assault, and/or amphibious assault forces to seize entry points into the operational area for future operations; forcible entry is normally a joint action.
ART 1.2	2.2.2	Seize and Hold Lodgement. To attack and secure a designated area in a hostile or threatened area which, when seized and held, ensures the continuous landing of troops and materiel and provides the maneuver space necessary for projected operations to be supported and extended throughout the area of operations.
ART 1.2	2.2.3	Buildup the Force. To rapidly build up from an initial small power base to a force capable of securing and protecting the lodgement area, and units within it, against enemy counterattacks and hostile acts by nonmilitary elements of the local population. To build up a logistics organization within the lodgement area to support
ART 1.2	2.2.4	4 Stabilize the Lodgement. To preempt or defeat enemy counterattacks in the lodgement area, expand the initial entry point(s) for the continuous and uninterrupted flow of additional forces and materiel into the area and provide sufficient space for freedom of action by the tactical forces. To sequence combat, SOF, CS and CSS forces into the lodgement area. To link the force with combat forces within or external to the lodgement area.

Task #	Subtask	Tab A-Tasks (Description of Task) to Appendix 1 (Operational Context) to Annex C (Military Tasks)
ART 1.2	2.2.5	Insert Follow-On Forces. To enter follow-on forces into the lodgement area to breakout and continue operations to accomplish the final objectives of the operation or, if necessary, to help secure the lodgement before continuing
ART 1.2	2.3	Conduct Attack. To take offensive action characterized by coordinated movement supported by fire to defeat, destroy, or neutralize the enemy. Attack includes hasty, deliberate, spoiling and counter- attacks, raids, feints and demonstrations. Forms of maneuver for conducting attack are envelopment, turning movement, infiltration,
ART 1.2	2.3.1	Conduct Hasty Attack. To conduct an attack in land operations in which preparation time is traded for speed in order to exploit an opportunity.
ART 1.2	2.3.2	Conduct Deliberate Attack. To conduct an attack characterized by preplanned coordinated employment of firepower and maneuver to close with and destroy or capture the enemy. A deliberate attack is planned and carefully coordinated and rehearsed with all concerned elements based on thorough reconnaissance, evaluation of available intelligence and relative combat strength, analysis of various courses of action, and other factors affecting the situation. It generally is conducted against a well-organized defense when a hasty attack is not possible or has
ART 1.2	2.3.3	Conduct Spoiling Attack. To conduct an attack employing a tactical maneuver to seriously impair a hostile attack while the enemy is in the process of forming or assembling for an attack. To execute an attack from a defensive posture to seriously impair a hostile attack by striking the enemy when he is preparing for his own attack and is
ART 1.2	2.3.4	Conduct Counter Attack. To conduct an offensive action in which an attack by a part or all of a defending force is made against an enemy attacking force, for such specific purposes as regaining ground lost, or cutting off or destroying lead enemy attacking units, an with the general objective of regaining the initiative and denying the enemy the attainment of his goal or purpose in attacking. In sustained defensive operations, it is undertaken to
ART 1.2	2.3.5	Conduct Raid. To conduct a deliberate attack, usually small-scale, involving a swift penetration of hostile territory to secure information, to confuse the enemy, or to destroy his installations. It ends with a planned withdrawal back to friendly territory upon completion of the assigned mission.
ART 1.2	2.3.6	Conduct Feint. To conduct an attack used as a deception intended to draw the enemy's attention away from the area of the main attack. A feint is designed to induce the enemy to move his reserves or to shift his fire support in reaction to the feint. Feints must appear real and therefore require some contact with the enemy. Usually a limited-objective attack ranging in size from a raid to a supporting attack is conducted.
ART 1.2	2.3.7	Conduct Demonstration. To conduct an attack or show of force on a front where a decision is not sought, made with the aim of deceiving the enemy. A demonstration is a type of attack that is deception similar to a feint, with the exception that no contact with the enemy is sought. In stability and support operations, an operation by military forces in sight of an actual or potential enemy to show military capabilities.
ART 1.2	2.4	Conduct Exploitation. To conduct offensive action in which the attacker extends the destruction of the defending force by maintaining offensive pressure.
ART 1.2	2.5	Conduct Pursuit. To conduct an offensive operation against a retreating force with the object of the pursuit the destruction of the enemy force. It follows a successful attack or exploitation and is ordered when the enemy cannot conduct an organized defense and attempts to disengage.
ART 1.2	3	Conduct Defensive Action. To take action to defeat an enemy attack. To buy time, to hold a piece of key terrain, to facilitate other operations, to preoccupy the enemy in one area so friendly forces can attack him in another, or to erode enemy resources at a rapid rate while reinforcing friendly operations.
ART 1.2	3.1	Conduct Mobile Defense. To orient defensive action on the destruction of the enemy force by employing a combination of fire and maneuver, offense, defense, and delay to defeat his attack.
ART 1.2	3.2	Conduct Area Defense. To deny the enemy access to designated terrain or facilities for a specified time. To deploy the bulk of forces to retain ground, using a combination of defensive positions and small, mobile reserves.
ART 1.2	3.3	Conduct Retrograde Action. To maneuver forces to the rear or away from the enemy as part of a larger scheme of maneuver to regain the initiative and defeat the enemy. To improve the current situation or prevent a worse situation from occurring. To gain time, to preserve forces, to avoid combat under undesirable conditions, or to

Task #	Subtask	Tab A-Tasks (Description of Task) to Appendix 1 (Operational Context) to Annex C (Military Tasks)
ART 1.2	3.3.1	Conduct Delay. To maneuver forces that are insufficient to attack or defend or when the design of the operation dictates maneuvering the enemy into an area for subsequent counterattack. To gain time for friendly forces to reestablish the defense, to cover a defending or withdrawing unit, to protect a friendly unit's flank, and to participate in an economy-of-force effort or to slow or break up enemy momentum.
ART 1.2	3.3.2	Conduct Withdrawal. To voluntarily disengage from the enemy and move rearward to extract subordinate units from combat, adjust defensive positions, or relocate the entire force.
ART 1.2	3.3.3	Conduct Retirement. To conduct a rearward movement by units not in contact.
ART 1.2	4	Conduct Security. To obtain information about the enemy and provide reaction time, maneuver space, and protection to the main body. Security is characterized by aggressive reconnaissance to reduce terrain and enemy unknowns, gaining and maintaining contact with the enemy to ensure continuous information, and providing early and accurate reporting of information to the protected force. Security operations include screen, guard, cover, and area
ART 1.2	4.1	Provide a Screen. To maintain surveillance; provide early warning (primary purpose) to the main body; or impede, destroy, and harass enemy reconnaissance within its capability. Locate and maintain contact with the lead company of each suspected enemy advance guard battalion.
ART 1.2	4.2	Provide Guard for Main Body. To protect the main force by fighting to gain time while observing and reporting information and, to prevent enemy ground observation of and direct fire against the main body by reconnoitering, attacking, defending, and delaying. The guard force normally operates within the range of the main body's indirect fire weapons. A guard force accomplishes all the tasks of a screen, ART 1.2.4.1).
ART 1.2	4.3	Provide Cover. To develop (in security for the main body) the situation early and deceive, disorganize, and destroy enemy forces. To accomplish all tasks of screening (ART 1.2.4.1) and guard (ART 1.2.4.2) forces in addition to cover. To operate apart from the main force and be tactically self-contained and capable of operating independently of the main body in an offensive or defensive mission and, as necessary, become decisively engaged
ART 1.2	4.4	Provide Area Security. To provide security of designated personnel, airfields, unit convoys, facilities, main supply routes, lines of communications, equipment, and critical points.
ART 1.2	4.4.1	Secure an Area. To neutralize or defeat enemy operations in a specified area delineated by the headquarters assigning the security mission. Area security is offensive or defensive in nature and focus on the enemy, the force being protected, or a combination of the two. To deny the enemy the ability to influence friendly actions in a specific area or to deny the enemy use of an area for his own purposes.
ART 1.2	4.4.2	Secure and Protect LOCs and Routes in AO. To prevent enemy ground maneuver forces or insurgents from coming within direct fire range of a protected route. Providing route security on and to the flanks of a designated route, defensive in nature and terrain oriented. To prevent an enemy force from impeding, harassing, containing, seizing, or destroying traffic along the route/LOC. Includes continuous mounted and dismounted reconnaissance of route and key locations to ensure trafficability; conduct sweeps of the route to prevent emplacement of enemy mines along the route; search suspected enemy locations; establish roadblocks and checkpoints; occupy key locations and terrain;
ART 1.2	4.4.3	Provide Convoy Security. To provide security directly to a convoy when insufficient friendly forces are available to continuously secure lines of communications in an area of operations. Convoy security is offensive in nature and orients on the force being protected to the front, flanks, and rear of a convoy element moving along a
ART 1.2	4.4.4	Secure Area for MOOTW. To take action within the area of operations to protect military or other governmental civilian organizations participating in peace operations against all attempts to impair their effectiveness or
ART 1.2	5	Perform Other Tactical Actions. To perform specific tactical maneuver peculiar to several forms and types of maneuver. These tactical actions include, patrolling (of various types), linkup, passage of lines, occupation of defensive positions and assembly area, and cover force. These actions occur during offensive, defensive, and retrograde actions for different purposes. For example, conducting a patrol can be for reconnaissance, security,
ART 1.2	5.1	Conduct Patrols. To utilize a detachment of ground, sea, or air forces to gather information or carry out a destructive, harassing, mopping-up, or security mission.

Task #	Subtask	Tab A-Tasks (Description of Task) to Appendix 1 (Operational Context) to Annex C (Military Tasks)
ART 1.2	5.2	Conduct Linkup with Other Tactical Forces. To conduct action to join up with a friendly force surrounded by enemy or to break out of an enemy encirclement to join up with friendly tactical forces. To conduct action to join up maneuver forces attacking on converging axes, to complete the encirclement of an enemy force, or during a counter attack when the moving force's axis of advance will eventually overlap or be in close proximity to the FLOT of
ART 1.2	5.3	Conduct Passage-of-Lines. To move a force forward or rearward through another force's combat positions with the intention of moving into or out of contact with the enemy.
ART 1.2	5.4	Conduct Relief in Place. To replace all or part of another unit with the incoming unit (relieving unit) usually assumes the same responsibilities and deploys initially in the same configuration as the outgoing unit. Relief in place is executed for a number of reasons, including: Introducing a new unit into combat, change a unit's mission, relieve a depleted unit in contact, retrain a unit, relieve the stress of prolonged operations in adverse conditions, rest a unit after long periods in MOPP, decontaminate a unit, and avoid excessive radiation exposure.
ART 1.3		3 Maintain Mobility. To maintain freedom of movement for personnel and equipment in the battle space without delays due to terrain or barriers, obstacles, and mines.
ART 1.3	1	Overcome Barriers, Obstacles, and Mines. To enable a force to maintain its mobility by removing or clearing/reducing existing and man made obstacles. Existing obstacles are natural and cultural features such as rivers, mountains, barrier reefs, and cities. Man made obstacles, such as minefields or antitank ditches, are those added to the combat area by the enemy to strengthen the physical environment and extend existing obstacles.
ART 1.3	1.1	Breach Obstacles. To clear a path or lane for personnel and equipment through an obstacle.
ART 1.3	1.1.1	Breach Minefields. To clear a path or lane through a mined area for friendly forces to continue their mission.
ART 1.3	1.1.2	Breach All Other Obstacles. To clear a path or lane through obstacles (other than minefields) by manual, mechanical, or explosive means.
ART 1.3	1.2	Reduce/Clear Obstacles. To completely destroy or remove an obstacle. Obstacles are reduced mechanically or by using demolitions.
ART 1.3	2	Enhance Movement. To enhance force mobility in the combat area by constructing/repairing combat roads and trails, forward airfields and landing zones, and by facilitating movement on routes (road and air traffic control; refugee
ART 1.3	2.3	Facilitate Movement on Routes. To expedite the forward movement of combat resources by the enforcement of main supply route regulation and control of stragglers and refugees. To allow the unimpeded passing of a moving force. Included are the clearing of accidents, choke points, and other traffic and the use of multiple routes.
ART 1.3	2.3.3	Provide Refugee and Straggler Control. To control refugees and stragglers to preclude interference and facilitate tactical movement of forces and combat service support in tactical operations within the AO.
ART 1.4	Tab A	(Conduct Countermobility. To delay, disrupt and destroy the enemy's offensive movement in order to destroy its forces directly or indirectly by enhancing the effectiveness of friendly weapon systems.
ART 1.4	Tab A (Ta	Secure/Select Location of Barriers, Obstacles, and Mines. To identify specific locations where reinforcing obstacles can be used to strengthen the terrain to extend existing obstacles in support of the tactical plan. Task includes terrain analysis and selecting sites to enhance the obstacle value of terrain.
ART 1.4	2	Emplace Barriers, Obstacles, and Mines. To strengthen the existing combat area to disrupt, turn, fix, or block the enemy. Actions under this task could include blowing a road crater, constructing a log crib, or emplacing mines.
ART 1.4	2.1	Emplace Mines. To emplace conventional or scatterable mines on the battlefield.
ART 1.4	2.2	Prepare/Emplace Constructed Obstacles. To prepare/emplace obstacles by soldiers and machinery, generally without the use of explosives (for example, wire, log cribs, steel H beam post obstacles, abatis). Task includes designing the obstacle(s), selecting construction material, constructing the obstacle(s), and positioning the obstacle(s).
ART 2.2		Collect Information. To obtain information on the situation and on enemy dispositions using all means available.
ART 2.2	1	Collect Information on Situation. To obtain information that affects a commander's possible courses of action. Considerations include the characteristics of the area of operations and the enemy situation. Information includes threat, physical environment, health standards/endemic disease, and social/political/economic factors. This task also includes the reporting and locating of isolated or captured personnel.

Task #	Subtask	Tab A-Tasks (Description of Task) to Appendix 1 (Operational Context) to Annex C (Military Tasks)
ART 2.2	1.1	Collect Threat Information. To obtain information on the enemy's disposition of forces, composition of forces, strength, recent and present significant activities, capabilities, and weaknesses or peculiarities.
ART 3.2		Conduct Direct Fire. To take the enemy under fire using lethal and nonlethal gunfire delivered on a target, using the target itself as a point of aim for either the gun or the gunner. Examples include small arms, tanks, antitank guns and rockets, automatic weapons, directed energy weapons. Attack helicopter fires are included here. This task includes use of direct-fire with maneuver; fires, particularly direct fire, is inherently connected to maneuver. Positioning of direct and indirect fire under firepower does not change that close relationship.
ART 3.2	2	Conduct Nonlethal Direct Fire on Surface Targets. To employ direct fire or other close combat means designed to impair the performance of enemy personnel and equipment without destroying the target, e.g., riot control agents.
ART 3.3		Conduct Fire Support. To conduct the collective and coordinated employment of the fires of armed aircraft, land- and sea-based indirect fire systems, and electronic warfare systems against surface targets to support land
ART 3.3	2	Conduct Nonlethal Fire Support on Surface Targets. To employ means designed to impair the performance of enemy personnel and equipment.
ART 3.3	2.1	Conduct Battlefield Psychological Activities. To use planned psychological activities conducted as an integral part of combat operations, or in support of stability and support operations, and designed to bring psychological pressure to bear on enemy forces and civilians under enemy control in the battle area in order to assist in the achievement of the tactical objectives. Task includes target audience analysis, select themes and symbols and media, developing propaganda products, pretests, obtaining final campaign approval, and disseminating propaganda
ART 3.3	2.2	Reduce Enemy Equipment Effectiveness. To degrade enemy equipment performance or render the equipment ineffective for its intended purpose. Includes electronic attack and countering target acquisition systems (including use of smoke, white phosphorous and illumination).
ART 3.3	2.2.1	Conduct Electronic Attack (EA) in AO. To employ jamming or electromagnetic or directed energy to attack personnel, facilities, or equipment. To use deliberate radiation, reradiation, or reflection of electromagnetic energy with the object of degrading, neutralizing, or destroying enemy combat capability Task includes determining signal to be jammed (or use of electromagnetic or directed energy) and desired result, selecting jamming method, initiating jamming, determining jamming effects on target, and adjusting jamming.
ART 3.3	2.2.2	Counter Target Acquisition Systems. To suppress (using hasty smoke, dazzling illumination) or degrade enemy direct observation, day and night vision optics, radar, sensors, electronic direction-finding equipment, and imaging systems used to detect, locate, classify, and identify friendly targets. Task includes employing obscurants, using electronic/electromagnetic countermeasures, and using electro optical countermeasures.
ART 3.4		Conduct Suppression of Enemy Air Defenses (SEAD). To neutralize, destroy, or temporarily degrade surface-based enemy tactical air defenses by destructive and/or disruptive means.
ART 3.4	2	Conduct Nonlethal SEAD. To temporarily deny, degrade, deceive, delay, or neutralize surface-based enemy tactical air defense systems by disruptive means to increase aircraft survivability by disruptive means. Disruptive means may be either active or passive. Active means include electronic attack (antiradiation missiles (ARM), directed energy, electromagnetic jamming and electromagnetic deception) expendables (chaff, flares, and decoys), tactics such as deception, avoidance, or evasive flight profiles, and unmanned aerial vehicles. Passive means include emission control, camouflage, infrared shielding, warning receivers, and material design features.
ART 5.4		Conduct Tactical Information Operations. To develop, use, and manage relevant information and predictive intelligence to support friendly decision making; to employ seamless, secure, dynamic command and control communications and computer systems, information interfaces with governmental/non-governmental agencies; and IO models and simulation; to protect friendly information operations, attack adversary information operations and support non-combat information operations. IO includes C2W, public affairs and civil affairs, Relative Information

Task #	Subtask	Tab A-Tasks (Description of Task) to Appendix 1 (Operational Context) to Annex C (Military Tasks)
ART 5.4	1	Conduct Tactical C2W. To assess friendly C2/C2 Protect vulnerabilities; to employ C2 protection measures; to assess adversary C4I/C2W operations; to attack, deny, degrade, exploit and/or influence adversary C4I/C2W; to integrate operations security, military deception, psychological operations, electronic warfare and physical destruction plus associated public affairs and civil affairs functions; and to support peacekeeping/non-combative information operations. Information security and counterintelligence are also important means to achieve this task. Military deception is discussed in ART 6.4; OPSEC is discussed in ART 6.3; EW is discussed in ART 2; PSYOP is discussed in ART 3.3.2.1; physical destruction is discussed in ART 3; C2-Protect is discussed in ART 6.2.1.1; C-
ART 6.1		Conduct Air and Missile Defense in Combat Zone. To employ all active measures designed to nullify or reduce the effectiveness of attack by hostile aircraft and missiles after they are airborne. To intercept, engage, destroy or neutralize enemy tactical aircraft and missiles in flight. This task includes dedicated air defense/antiair systems, defensive counterair, and fires by non-dedicated weapons at aerial targets.
ART 6.1	1	Process Tactical Aerial Targets. To select targets and match the appropriate response to them, taking into account operational requirements and capabilities.
ART 6.1	1.1	Search for Aerial Targets. To systematically conduct a reconnaissance or surveillance of a defined area so that all parts of the area have passed within visibility or detection.
ART 6.1	3	Conduct Nonlethal Engagement of Air/Missile Targets. To employ means designed to impair the performance of enemy aircraft and missiles, to include jamming of navigational aids and weapon system guidance means.
ART 6.1	4	Deny Use of Aerospace. To prevent enemy use of airspace through fire potential or other means without direct attack of air targets (for example, deliberate smoke).
ART 6.10		Rescue, Recover and Evacuate Military and Civilian Personnel. Provide capability to rescue and recover both military and civilian personnel.
ART 6.10	1	Evacuate Noncombatants from Area. To use available military and host-nation resources to evacuate US dependents, US Government civilian employees, and private citizens (US and third nation) from the area of operations.
ART 6.10	2	Conduct Combat Search and Rescue (CSAR). To locate and extract distressed personnel and sensitive equipment from enemy controlled area during wartime or contingency operations to prevent capture.
ART 6.2		Protect against Hazards in AO. To protect friendly forces in the battle space by reducing or avoiding the effects of enemy and friendly weapons. Includes providing safety to personnel, units, and equipment during operations and training (e.g., through location, positive identification, warning, and reporting).
ART 6.2	1	Protect Individuals and Systems. To use protective positions (natural or artificial), measures, or equipment (such as, armor, detection, MOPP gear, collective protective equipment) to reduce the effects of enemy and friendly weapon systems. This activity includes employing electronic protection, NBC detection, identification, warning, and reporting equipment, protective positioning and equipment, and protecting forces and populace from PSYOP attack. This function also includes positively distinguishing friendly from enemy forces.
ART 6.2	1.1	Conduct C2 -Protect. To maintain the effectiveness of friendly C2 despite both adversary and friendly counter-C2
ART 6.2	1.1.1	Employ Electronic Protection (EP). To take action to ensure friendly, effective use of the electromagnetic spectrum despite the enemy and friendly use of electronic warfare which degrades or destroys friendly communication and noncommunications capabilities.
ART 6.2	1.2	Prepare Fighting Positions. To take action to prepare primary, alternate, and supplementary protective positions that allow fields of fire and maneuver for troops and systems engaging the enemy.
ART 6.2	1.3	Prepare Protective Positions. To take action to provide protection for personnel and/or materiel not directly involved in fighting the enemy from attack or environmental extremes.
ART 6.2	1.4	Employ Protective Equipment. To employ both individual and collective equipment to protect personnel and systems against hazards caused by extreme changes in physical environment, dangerous working conditions, enemy or friendly
ART 6.3		Employ Operations Security. To deny adversaries information about friendly capabilities and intentions by identifying, controlling, and protecting indicators associated with planning and conducting military operations. This task includes employing signals security and electronics security.

Task #	Subtask	Tab A-Tasks (Description of Task) to Appendix 1 (Operational Context) to Annex C (Military Tasks)
ART 6.3	1.1.1	Employ Physical Security Measures for Communications Facilities. To safeguard and prevent unauthorized access to communications sites, personnel, equipment, material, and documents.
ART 6.3	2.3	Employ Smoke/Obscurants. To use smoke or obscurants to conceal friendly positions and to screen maneuvering forces from enemy observation. Includes obscuring/screening immediate area and/or wide area.
ART 6.4		Conduct Deception in Support of Tactical Operations. To mask the real objectives of tactical operations and delay effective enemy reaction. This is done by misleading the enemy about friendly intentions, capabilities, objectives, and the locations of vulnerable units and facilities. This function includes manipulating, distorting, or falsifying evidence available to the enemy to ensure security to real plans, operations, or activities. It
ART 6.4	1	Employ Physical Deception. To use demonstrations, feints, ruses, displays, deception smoke screens to prevent the enemy from learning the intentions of the friendly force. Includes employment of visual, auditory and olfactory
ART 6.4	2	Employ Electronic Deception. To deliberately radiate, reradiate, alter, absorb, enhance, or reflect electromagnetic energy in a manner intended to mislead hostile forces in the interpretation or use of information
ART 6.4	2.1	Employ Imitative Electronic Deception. To introduce radiations into unfriendly channels that imitate hostile emissions. Introduce false information into enemy communications networks and false radiation into enemy
ART 6.4	2.2	Employ Simulative Electronic Deception. To create electromagnetic emissions to represent friendly notional or actual capabilities to mislead hostile forces.
ART 6.4	2.3	Employ Manipulative Electronic Deception. To alter friendly electromagnetic emission characteristics, patterns, or procedures to eliminate revealing or to convey misleading, telltale indicators that may be used by hostile forces.
ART 6.5		Conduct Local Security. To take measures to protect from surprise, observation, detection, interference, espionage, terrorism, and sabotage.
ART 6.5	1	Provide Local Security for Tactical Formations. To enhance freedom of action for US tactical units and the AO by identifying and reducing friendly vulnerability to hostile acts, influence, or surprise. (FM 7-20)
ART 6.5	2	Provide Counterreconnaissance in Area of Operations. To take all measures to prevent hostile observation of tactical forces, area, or place.
ART 6.5	3	Secure and Protect Critical Installations/Facilities in AO. To secure and protect installations and facilities
ART 6.5	4	Conduct Tactical Counterintelligence in AO. To gather information and conduct activities to protect against espionage, other intelligence activities, sabotage, or assassinations conducted by or on behalf of foreign governments or elements thereof, foreign organizations, or foreign persons, or international terrorist activities .
ART 6.5	5	Combat Terrorism within Area of Operations. To take actions to oppose terrorism throughout the entire threat spectrum. Actions include antiterrorism (defensive measures taken to reduce vulnerability to terrorist acts) and counterterrorism (offensive measures taken to prevent, deter, and respond to terrorism).
ART 6.5	5.1	Conduct Counterterrorism. To take offensive measures to prevent, deter, and respond to terrorism.
ART 6.5	5.2	Conduct Antiterrorism. To take defensive measures used to reduce the vulnerability of individuals and property to terrorist acts, to include limited response and containment by local military forces.
ART 6.7		Conduct Populace and Resource Control (PRC). To provide security for a populace; denying personnel and material to the enemy; mobilization of population and material resources; and the detection and reduction of the effectiveness of enemy agents. Populace controls also include the maintenance of curfews, movement restrictions, travel permits, registrations cards, and resettlement of villagers. Resource control measures include licensing, regulations, or guidelines, checkpoints (for example, road blocks), reaction controls, amnesty programs, and inspection of facilities. Two subdivisions of PRC operations are Dislocated Civilian operations (DC) and evacuation of host-
ART 6.8		Resettle Refugees. To collect and evacuate refugees.
ART 6.9		Conduct Internment Operations. To provide safe and humane treatment for enemy prisoner of war (EPW) and US military prisoners. This includes collection, processing, evacuation, internment, safeguarding, and release of EPW, US military prisoners, and civilian internees.
ART 6.9	1	Perform EPW/Civilian Internment. To provide safe and humane treatment for enemy prisoner of war (EPW). This includes collection, processing, evacuation, internment, safeguarding, and release of EPW and civilian internees.

Task #	Subtask	Tab A-Tasks (Description of Task) to Appendix 1 (Operational Context) to Annex C (Military Tasks)
ART 6.9	2	Intern US Military Prisoners. To detain, sustain, protect, and evacuate US military prisoners. This includes the establishment of temporary detention facilities when needed.
AFT 1.1		Provide Counterair Capabilities. To organize, train, equip, provide, and plan for the use of forces for the conduct of prompt and sustained combat operations in the air. Specifically, forces to defend the interest of the United States against air attack, gain and maintain general air supremacy, defeat enemy air forces, conduct space operations, control vital air areas, and establish local air superiority. supremacy, defeat enemy air forces,
AFT 1.1	1	Perform Counterair Functions. To attain and maintain a predetermined degree of air superiority by the destruction or neutralization of enemy forces.
AFT 1.1	1.1	Conduct Offensive Counterair (OCA). To destroy, neutralize, disrupt, or limit enemy air and missile power as close to its source as possible and at a time and place of our choosing. This task includes suppression of enemy air defense targets, such as aircraft and surface-to-air missiles (SAMs) or local defense systems, and their supporting command and control (C2). The aircraft and missile threat may include fixed- and rotary-wing attack aircraft, reconnaissance aircraft, unmanned aerial vehicles (UAVs), air-, land-, and sea-launched cruise missiles, ballistic missiles, and air-to-surface missiles. These activities fall under the broad category of OCA. OCA operations protect friendly forces and vital interests by destroying or neutralizing enemy offensive air and missile threats
AFT 1.1	1.2	To defend friendly airspace and protect friendly forces, materiel, and infrastructure from enemy air and missile attack. It entails detection, identification, interception, and destruction of attacking enemy aircraft and missiles, and normally takes place over or close to friendly territory. These activities fall under the broad category of DCA. DCA is synonymous with air defense and consists of active and passive activities.
AFT 1.2		Provide Counterspace Capabilities. To organize, train, equip, provide, and plan for the use of forces to gain and maintain control of activities conducted in or through the space environment.
AFT 1.2	1	Perform Counterspace Functions. To attain and maintain a predetermined degree of space superiority.
AFT 1.2	1.1	Conduct Offensive Counterspace (OCS). To destroy or neutralize an adversary's space systems or the information they provide at a time and place of our choosing through attacks on the various elements of space systems. Offensive counterspace operations can involve the use of lethal or nonlethal means and are conducted to achieve five major purposes: deception, disruption, denial, degradation, or destruction of enemy space assets or capabilities through attacks on the space, terrestrial, or link elements of space systems.
AFT 1.2	1.2	Conduct Defensive Counterspace (DCS). To reduce and preclude the effectiveness of an adversary's counterspace operations and preserve our ability to use friendly space systems. Defensive counterspace operations consist of active and passive defense and may include national missile defense operations.
AFT 2.2		Provide Nonlethal Precision Engagement Capabilities. To provide equipment, forces, procedures, and doctrine necessary for the effective prosecution of nonlethal attack operations, including electronic warfare operations
AFT 2.2	1	Perform Nonlethal Precision Engagement Functions. To cause discriminate strategic, operational, or tactical effects through the use of nonlethal force.
AFT 2.2	2	Educate and Train Forces to Conduct Nonlethal Precision Engagement. To develop doctrine, procedures, and training for nonlethal precision engagement operations. This includes the individual unit training of these forces.
AFT 2.2	3	Equip Forces with Nonlethal Precision Engagement Capabilities. To provide materiel forces and maintain that equipment for appropriate nonlethal precision engagement operations.
AFT 2.3		Provide Combat Search and Rescue (CSAR) Capabilities. To organize, train, equip, provide, and plan for the conduct of prompt and sustained air operations to recover isolated personnel during wartime and contingency operations. It preserves critical combat resources and denies the enemy potential sources of intelligence. It is also a key element in sustaining the morale, cohesion, and fighting capability of friendly forces. The USAF maintains forces specifically trained and equipped to conduct combat search and rescue operations. Other USAF weapon systems have inherent capability to support CSAR operations in command and control, force protection, and force enhancement roles. Time of day, available personnel recovery-capable resources, and supporting assets are crucial force

Task #	Subtask	Tab A-Tasks (Description of Task) to Appendix 1 (Operational Context) to Annex C (Military Tasks)
AFT 2.3	1	Perform CSAR Functions. To conduct operations to recover isolated personnel during wartime or contingency as necessary. CSAR forces also sustain collateral capabilities to support civil search and rescue (SAR), emergency aeromedical evacuation, disaster relief, international aid, counterdrug activities, and space shuttle support. CSAR operations may employ electronic or visual search methods and may focus on inland, coastal, or maritime
AFT 3.1		Provide Information Operations Capabilities. To organize, train, equip, provide, and plan for the use of forces to gain, exploit, defend, or attack information and information systems. This includes both information-in-warfare and
AFT 3.1	1	Provide Information Operations Capabilities. To organize, train, equip, provide, and plan for the use of forces to gain, exploit, defend, or attack information and information systems. This includes both information-in-warfare and
AFT 3.1	1.2	Perform Information Warfare Functions. To conduct information operations to defend one's own information and information systems, or attacking and affecting an adversary's information and information systems.
AFT 3.1	1.2.1	Perform Counterinformation (OCI). To counter the enemy's ability to attain an information advantage. Counterinformation is divided into two subsets of activity called offensive counterinformation (OCI) and defensive
AFT 3.1	1.2.1.1	Perform Offensive Counterinformation (OCI). To take actions to control the information environment. The purpose is to disable selected enemy information operations. OCI operations are designed to destroy, degrade, or limit enemy information capabilities and depend on having an understanding of an adversary's information capabilities. Examples of OCI include jamming radars and corrupting data acquisition, transformation, storage, or transmissions of an
AFT 3.1	1.2.1.1.1	Conduct PSYOP. To conduct psychological operations in order to achievespecific objectives.
AFT 3.1	1.2.1.1.2	Conduct Electronic Warfare (EW). To create/manipulate the electromagnetic spectrum or to attack an adversary to create an electronic sanctuary in which friendly aircraft can operate.
AFT 3.1	1.2.1.1.3	Conduct Military Deception. To mislead adversaries, causing them to act in accordance with the originator's objectives. Deception can distract from, or provide cover for, military operations, confusing and dissipating
AFT 3.1	1.2.1.1.4	To perform "hard-kill" vice information attack operations against designated targets as an element of an integrated IW effort. Physical attacks disrupt, damage, or destroy an adversary's information and information systems through the conversion of stored energy into destructive power.
AFT 3.1	1.2.1.1.5	Conduct Information Attack. To manipulate or destroy an adversary's information systems without necessarily changing visibly the physical entity within which it resides.
AFT 3.1	1.2.1.1.2	Perform Defensive Counterinformation (DCI). To take actions protecting our information, information systems, and information operations from the adversary. DCI programs, such as operations security (OPSEC), information assurance (IA), and counterintelligence assess the threat and reduce friendly vulnerabilities to an acceptable level. Improving security procedures designed to safeguard equipment and information can prohibit unintentional and unwanted release of information, protecting ourselves against actions that would deny, exploit, corrupt, or destroy information and its functions from enemy exploitation.
AFT 3.1	1.2.1.2.2	Conduct OPSEC. To deny the adversary access to critical friendly information using the OPSEC process.
AFT 3.1	1.2.1.2.3	Conduct Counterintelligence. To counter an adversary's efforts to conduct adequate, timely, and reliable
AFT 3.1	1.2.1.2.4	Conduct CounterPSYOP. To defeat enemy attempts to conduct PSYOP on our forces.
AFT 3.1	1.2.1.2.5	Conduct Electronic Protection (EP). To protect personnel, facilities, and equipment from any effects of friendly or enemy employment of electronic warfare that degrade, neutralize, or destroy friendly combat capabilities.
AFT 3.1	1.2.1.2.6	Conduct Counterdeception. To neutralize, diminish the effects of, or gain advantage from a foreign deception
AFT 4.1		Provide Strategic Attack Capabilities. To organize, train, equip, provide, and plan for the use of forces for strategic air and missile warfare. To perform those operations intended to directly achieve strategic results or objectives. It is the operation's direct impact on assigned strategic objectives that is the determining factor. Strategic attack objectives often include producing effects to demoralize the enemy's leadership, military forces, and population, thus affecting an adversary's capability to continue the conflict. This function may be carried out in support of a theater commander in chief (CINC) or as a stand-alone operation by direction of the NCA. Strategic

Task #	Subtask	Tab A-Tasks (Description of Task) to Appendix 1 (Operational Context) to Annex C (Military Tasks)
AFT 4.1	1	Perform Strategic Attack. To conduct attacks intended to accomplish strategic objectives. These attacks often include producing effects that not only degrade the means of the enemy to perform but also demoralize the enemy's leadership, military forces, and population, thus affecting an adversary's capability to continue the conflict.
AFT 4.1	1.1	Demoralize the Enemy. To take action with the intent to demoralize the enemy's leadership, military forces, or population, thus affecting an adversary's capability to continue with actions in conflict with the interest of
AFT 4.1	1.2	Degrade Enemy Assets. To take action with the intent to reduce the assets of the enemy's leadership, military forces, or population, thus affecting an adversary's capability to continue with actions in conflict with the
AFT 4.2		Provide Counterland Capabilities. To organize, train, equip, provide, and plan for the use of forces that can attain and maintain a desired degree of superiority over surface operations by the destruction or neutralization of enemy surface forces. Although traditionally associated with support to friendly surface forces, counterland is a flexible term that can encompass the identical missions without friendly surface-force presence. This independent or direct attack of adversary surface operations by aerospace forces is the essence of asymmetric application and is a key to success during operations to decisively halt an adversary during initial phases of a conflict. Specific traditional functions associated with aerospace counterland operations are interdiction and close air support
AFT 4.2	1	Perform Counterland Functions. To attain and maintain a desired degree of superiority over surface operations by the destruction or neutralization of enemy surface forces.
AFT 4.2	1.1	Interdict Enemy Land Power. To divert, disrupt, delay, or destroy the enemy's land power potential before it can be used effectively against friendly forces. Interdiction attacks enemy C2 systems, personnel, materiel, logistics, and their supporting systems to weaken and disrupt the enemy's efforts and may achieve tactical, operational, or strategic objectives. Although nontraditional in the classic sense, information warfare may also be used to conduct interdiction by intercepting or disrupting information flow or damaging/destroying controlling software and hardware. For example, electronic warfare could be used to prevent further enemy incursions by disrupting C2 of
AFT 4.2	1.2	Conduct Close Air Support (CAS). To provide direct support air operations to help friendly surface forces carry out their assigned tasks. These air operations against hostile targets are in close proximity to friendly forces and require detailed integration of each air mission with the fire and movement of those forces. CAS can halt attacks, help create breakthroughs, cover retreats, and guard flanks. In fluid, high-intensity warfare, the need for tight control, the unpredictability of the tactical situation, and the proliferation of lethal ground-based air defenses
AFT 4.2	1.3	Conduct Airborne Operations. To operate Air Force forces in airborne operations. This includes providing forces and the development of tactics and techniques employed by Air Force forces in the air movement of troops, supplies, and equipment in joint airborne operations, including parachute and aircraft landings.
AFT 4.2	1.4	Support Amphibious Operations Functions. To develop, in coordination with the other Services, tactics, techniques, and equipment of interest to the Air Force for amphibious operations.
AFT 4.3		Provide Countersea Capabilities. To organize, train, equip, provide, and plan for the use of forces that can gain control of maritime operations and, to the extent possible, dominate operations either in support of naval forces or independently. Countersea functions are an extension of Air Force functions into a maritime environment. The identified specialized collateral functions are sea surveillance, antiship warfare, protection of sea lines of communications through antisubmarine and antiair warfare, and aerial minelaying. Many of these collateral functions translate to primary functions of aerospace forces such as interdiction, counterair, and strategic attack.
AFT 4.3	1	Perform Countersea Functions. To attain and maintain a desired degree of superiority over maritime operations by the destruction or neutralization of enemy maritime forces. These functions include sea surveillance, antiship warfare, protection of sea lines of communications through antisubmarine and antiair warfare, and aerial

Task #	Subtask	Tab A-Tasks (Description of Task) to Appendix 1 (Operational Context) to Annex C (Military Tasks)
AFT 4.3	1.1	Interdict Enemy Sea Power. To divert, disrupt, delay, or destroy the enemy's maritime military potential before it can be used effectively against friendly forces. Interdiction attacks enemy C2 systems, personnel, materiel, logistics, and their supporting systems to weaken and disrupt the enemy's efforts and may achieve tactical, operational, or strategic objectives. Although nontraditional in the classic sense, information warfare may also be used to conduct interdiction by intercepting or disrupting information flow or amaging/destroying controlling software and hardware. For example, electronic warfare could be used to prevent further enemy incursions by
AFT 4.3	1.2	Conduct Antisubmarine Warfare. To conduct activities with the intention of denying the enemy the effective use of
AFT 4.3	1.3	Conduct Aerial Minelaying Operations. To lay mines to degrade the enemy's capabilities to use selected sea areas.
AFT 4.4		Provide Special Operations Forces (SOF) Employment Capabilities. To organize, train, equip, provide, and plan for the use of forces for the support and conduct of special operations. SOF employment is the use of special airpower operations (denied territory mobility, surgical firepower, and special tactics) to conduct the following special operations tasks: unconventional warfare, direct action, special reconnaissance, combating terrorism, foreign internal defense, psychological operations, civil affairs, information operations and counter proliferation. Special operations aviation forces also assist in conducting the USSOCOM collateral missions of coalition support, combat search and rescue (CSAR), humanitarian affairs, counterdrug activities, countermine activities, and security
AFT 4.4	1	Perform Special Operations Forces (SOF) Employment Functions. To use special airpower operations to conduct denied territory mobility, surgical firepower, psychological operation media dissemination, aviation advisory operations,
AFT 6.2		Provide the Capability to Protect the Force. To organize, train, equip, provide, and plan for the use of forces to protect and defend our global engagement fighting potential to project aerospace power in a safe and secure operational environment anytime, anywhere. Force protection is the process of securing the total force, allowing for the freedom to operate in all locations, under normal and adverse conditions in order to assure mission completion. It plays a part in every phase of Air Force life from the vaccinations of new Air Force inductees to the defense of our air bases to the security and safety of our home communities. All Air Force people, regardless of career field, play a part in the protection of the force. This is demonstrated through formal programs like resource protection, the ready augmentee program, and owner-user security. It can be illustrated in terms as simple as self-defense in a hostile environment. It ultimately results in a force free of unwanted distractions allowing for the furtherance of the goals of the Air Force. This task includes security programs designed to protect Service members, civilian employees, family members, facilities, and equipment in all locations and situations, accomplished
AFT 6.2	1	To meet global mission requirements with a responsive, sustainable, and survivable support force prepared to promote and defend national interests.
AFT 6.2	1.2	Perform Force Protection. To protect and defend our global engagement fighting potential to project aerospace power anytime, anywhere. This task includes security programs designed to protect Service members, civilian employees, family members, facilities, and equipment in all locations and situations, accomplished through planned and integrated application of combating terrorism, physical security, operations security, personal protective services, as supported by intelligence, counterintelligence, and other security programs. This task includes defensive, active, and offensive force protection operations and countermeasures designed to minimize the effects of or recovery from hostile activities or natural occurrences. The application of force protection includes all

**Annex D:
Non-Lethal
Technologies**

Annex D: Non-Lethal Technologies

Purpose

The purpose of this Annex is to present additional details from the study focusing on the technologies and the tasks. The Annex will describe and provide the analysis of potential capabilities offered by six specific technology suites and the actions or task requirements associated with the Universal Joint Task List and each of the individual Service Task List (Naval, Army, and Air Force). This annex begins with a brief overview of the study, which includes a description of where the work on tasks fits into the overall methodology. The following section presents some of the study's detailed results¹.

Study overview

The study as a whole, examined if, where, and how non-lethals might contribute to future military operations.

The study's methodology

The study group applied a methodology whose foundation had four pillars—alternative futures, operational context, tasks, and technologies—and two-way connections between pillars. We examined threats and crises that might emerge, determined the Joint and Service tasks performed in different military operations, and assessed technologies' potential capabilities vs. task requirements. Figure 1 provides an illustration.

This methodology explicitly examines:

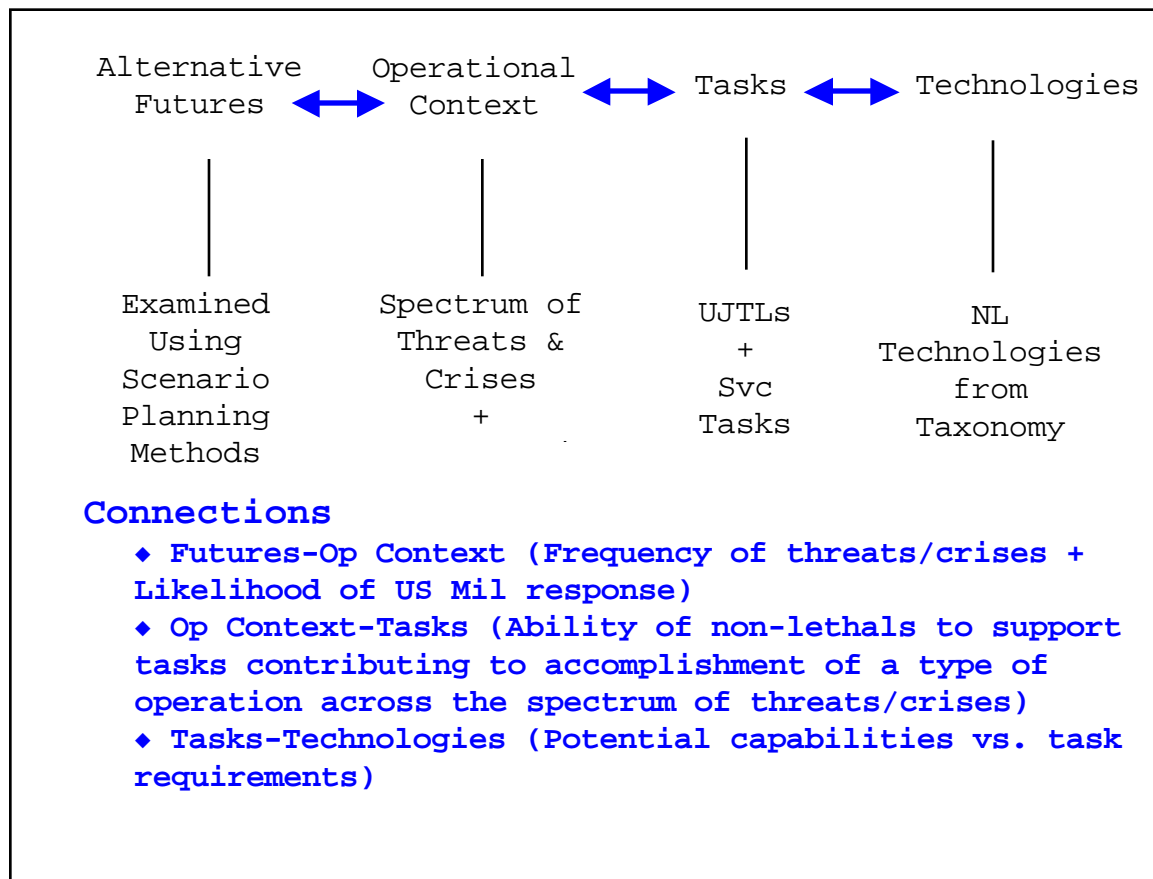
- Different alternative future pathways—which may affect the frequency of threats and crises across different geographic

¹ This study has separate annexes covering alternative futures, operational context, tasks (this annex), and technologies.

regions and the likelihood of U.S. military involvement

- The entire spectrum of threats and crises²—from Domestic Emergencies through Global War—and specific types of military operations based largely on past operational experience
- All tasks from the Universal Joint Task List (UJTLs) and Service task lists.
- The potential abilities of non-lethal technologies to accomplish tasks

Figure 1. Illustration of the study's methodology



Key study results

Applying this detailed approach, we identified where and how non-lethals could contribute.

² This terminology is derived from the current National Security Strategy

Lethal weapons clearly form the core of the nation's arsenal, and they will continue to do so. Non-lethals can, however, offer valuable complementary capabilities. And there are selected areas where they could offer advantages or unique opportunities relative to lethals. Table 1 lists some of these areas. Not surprisingly, the greatest number of opportunities exists at the lower end of the spectrum of conflict. But opportunities exist—including all of the items in the table—even at the Major Theater War (MTW) level.

Table 1. Important opportunities for non-lethals

Key areas where non-lethals offer significant or unique advantages relative to lethals	Non-lethal technologies potentially applicable to these tasks
Creation or enhancement of a target's signature	<ul style="list-style-type: none"> ▪ Taggants/Markers
Counter-mobility and area denial effects (with reversibility of effects)	<ul style="list-style-type: none"> ▪ Calmatives ▪ Malodorants ▪ Entanglements ▪ Reactants
Degrading WMD production and delivery systems (Non-lethals could reduce the risk of NBC release)	<ul style="list-style-type: none"> ▪ Electromagnetic ▪ Reactants ▪ Bio-degrading microbes
Deception (Affect—positively or negatively—perceptions)	<ul style="list-style-type: none"> ▪ Obscurants ▪ Optical technologies
Breaching (Facilitate movement and maneuver over and through barriers obstacles, and mines)	<ul style="list-style-type: none"> ▪ Barrier foams
Capture individuals for Intel purposes	<ul style="list-style-type: none"> ▪ Counter-personnel technologies
Protect forces and facilities	<ul style="list-style-type: none"> ▪ Most of the non-lethal taxonomy

In addressing the fundamental question—*Can non-lethals contribute to future military operations?*—the answer is **Yes**.

With respect to where and how they can contribute:

- Non-lethals apply across the hierarchy of tasks—strategic, operational, and tactical levels
- Non-lethals have major applications not just for Force Protection but also for Movement/Maneuver and Employing Forces/Fires, with fewer applications for ISR and C2.

- Non-lethals can not only complement lethals but also, for some tasks, offer advantages or unique contributions. This is true across the spectrum of threats and crises including MTW and higher, although it is true for an increasing number of tasks at the lower end of the spectrum.

Analysis of technologies

The Universal Joint and Service tasks are actions or processes performed as part of joint or service specific operations. The tasks are not intended to specify who, what means will be employed or how the tasks will be accomplished. The task definitions are not doctrine, but are based on joint and/or Service doctrine, tactics, techniques and procedures.

All of the tasks came from either the Universal Joint Task List or Service tasks. The number of UJTLs and Service tasks totals 1457. These tasks are organized into a hierarchy of four levels: Strategic National (SN), Strategic Theater (ST), Operational (OP), and Tactical (TA). The Tactical-level tasks are the Army Tactical (ART), Air Force Tactical (AFT) and Naval Tactical (NTA) tasks.

A careful review of the tasks revealed eight categories:

- Mobilize, deploy, move and maneuver forces
- Conduct Intelligence, Surveillance & Reconnaissance (ISR)
- Employ forces and fires
- Sustain, support, and provide logistics/CSS to forces
- Provide direction, integration, and command and control
- Support force development and readiness
- Promote multi-national and inter-agency relations
- Provide force protection

For this set of tasks, we examined every non-lethal technology against each task's requirements in a given operational context. For each task, we used criteria to determine whether a given technology could fully, largely, partially, minimally, or could not support task accomplishment. We examined the

connection between tasks and operational context, starting with a look at the potential applicability of non-lethals (and lethals) to each individual task.

Methodology of Technology to Task Analysis:

The tasks are organized into four separate parts by levels of war as follows:

- Strategic level-National military tasks (prefix SN)
- Strategic level-Theater tasks (prefix ST)
- Operational level tasks (prefix OP)
- Tactical level tasks (prefix TA) Service Tactical tasks are listed below:
 - Naval Tactical tasks (prefix NTA)
 - Army Tactical tasks (prefix ART)
 - Air Force Tactical tasks (prefix AFT)

Each task is individually indexed to reflect its placement in the structure. This index provides a standard reference system for users to address and report requirements, capabilities, or issues. The excel spread sheet contain in this Annex lists the specific type tasks, at every level, that the group found potential opportunities for the application of non-lethal technologies across the spectrum of conflict and operations.

An effort to reduce the confusion created by numerous competing definitions and claims of weapons effects, the study group used a taxonomy of Non-lethal Weapons that categorized existing Non-lethal Weapons as well as potential ones. The Taxonomy

categorizes Non-lethal Weapons based on the physical principle that produces the weapon's effect rather than the target. The technology suites were derived from the non-lethal taxonomy provided by the Joint Non-lethal Weapons Directorate. The six major suites of technologies found in the taxonomy are identified as follows:

Acoustics

Biotechnology

Chemical

Mechanical

Optical

Electro-Magnetic

The suites were further broken down into sub-categories for detail examination and analysis with regard to its utility and contribution in supporting the accomplishment of each individual Joint or Service task. The sub-categories are as follows:

Acoustics

Acoustic/Optical; Flash-bang, Stun Grenade

Blast Wave; Explosive, Pulse Laser

High Intensity Sound; Curdler Unit, HPS-1 Sound System, Squawk Box

Infrasound

Bio-Technology

Behavior Modification; Calmatives,
Gastrointestinal Convulsive,

Malodorants,

Biodegrading Microbes,

Biomaterials

Chemical

Markers

Obscurants

Reactants; Combustion Alteration, Chemical Compounds, Embrittlers

Riot Control Agents

Mechanical

Barriers; Coatings-Slippery, Rigid, Spikes, Batons

Electric; Baton, Sticky shocker, Stun gun and belt,

Entanglement; Cloggers, Nets, Spider fiber

Projectile-blunt; Bean bag, Liquid fill, Ring air foil grenade, Sting balls, Stun bags, Velocity adjusting launcher, Water cannon

Optical

Holograms

Lights; Dazzle, Flares, Illuminating grenades, Isotropic radiators

Stroboscopic devices

Electromagnetic

Radio; Electro Magnetic Interference (EMI), Non-nuclear Electro Magnetic Pulse (EMP), Radio Frequency (RF)

Microwave; High Powered Microwave (HPM), Microwave Amplification By Stimulated Emission of Radiation (MASER), Thermal Gun

Infrared; Tactical Lasers, Low Energy Lasers

Visible Lasers

Ultraviolet; Tactical Lasers, Pulsed Chemical Lasers

X-ray

Gamma Ray

Non-Lethal Technologies' Characteristics

The below characteristics were used by the study group during the technology to task analysis to develop the potential capabilities versus task requirements.

Acoustics

Acoustics & Optical

Diversionary Device (Flash Bang) - This pyrotechnic device emits a loud sound and a dazzling light when ignited. It is intended to create a sensory overload that temporarily causes confusion. These devices can be delivered by a number of means such as 37-40 mm launching devices and 12 gauge shotguns.

Stun Grenade - An acoustical and optical grenade, XM84, developed by the US Army for use by military police.

Blast Wave Projector

Explosive/Pyrotechnic

Pulsed laser - A pulsed laser creates hot, high-pressure plasma in front of a target. The plasma creates a flash and acoustic wave that have variable effects on troops and hardware. The JNLWP Technology Investment Program is currently funding research.

High Intensity Sound

Curdler Unit - Connected to a powerful amplification unit, like the HPS-1, this device produces a shrill shrieking, blasting noise at a decibel level just below danger to the human ear.

HPS-1 Sound System - A 350 watt sound system with an audible voice range of 2.5 miles.

Squawk Box - This device emits two ultrasound frequencies; when mixed in the human ear, this combination of frequencies becomes intolerable. It purportedly produces giddiness, nausea or fainting. The beam is small enough to aim at individuals.

Infra Sound

Very low frequency sound purportedly travels long distances and easily penetrates most buildings and vehicles. Also purported were biophysical effects: nausea, disorientation, vomiting, potential internal organ damage or even death. Extensive research sponsored by the JNLWD failed to produce devices that could generate the frequency and intensity desired nor did laboratory tests demonstrate any significant effects on subjects. The JNLW program has discontinued infrasound acoustic work and is now considering work in the audible acoustic range.

Biotechnical

Behavior Altering Drugs

Calmatives - Agents include sedatives or sleep-inducing drugs. Many can be applied by mixing the agent with dimethyl sulfoxide (DMSO), which promotes absorption through the skin for quick results.

Gastrointestinal Convulsive - These include agents specifically developed to affect the

gastrointestinal tract by creating convulsions, vomiting, and diarrhea.

Malodorants

Studies are under way to determine if malodorants, including foul-smelling gases and sprays such as hydrogen sulfide (H_2S) or NaS_8 , consistently produce desired human responses and in what dosages. Malodorants could be deployed by a variety of munitions, perhaps in encapsulated form to control triggering. Effects are subject to weather, and effects on clothing and some structures may be difficult to reverse.

Biodegrading Microbes

Biodegrading microbes produce acids or enzymes, which can be tailored to degrade substances like metals, fuels, and concrete.

Biomaterials - Was not defined.

Chemical

Markers

Agents can mark individuals or groups for later identification. Agents include dyes, paints, or powders possibly mixed with smoke. Some marking agents could be invisible until made to fluoresce with ultraviolet or laser light. Markers could be deployed by any number of devices providing the capability to mark a single individual as well as a large crowd. Typically markers wash or eventually wear off the skin, but clothing may be permanently stained.

Obscurants

Obscurants reduce visibility. This category includes smokes as well as agents that harden and cover vision ports or optics in vehicles. Deployment can be achieved in a variety of

quantities by numerous ground devices or air platforms. Effect and duration could be limited by weather. Smokes will generally dissipate by themselves but some coating obscuring agents may require considerable cleaning and may cause permanent damage to delicate optics.

Reactants

Combustion Alteration - Chemical agents that contaminate or change fuel characteristics can degrade engine performance or inhibit combustion altogether. They may be applied through an airborne vapor (delivered by any number of means), directly mixed during refueling, or applied directly at the fuel source. Combustion would be altered as long as the agent is present.

Chemical Compounds - Powerful chemical compounds could dissolve noble metals (such as gold or platinum) and organic compounds. Also known as supercaustics, superacids, supercorrosive bases, and C+, these compounds could be delivered in binary form to attack structures, vehicles, roads, rooftops, or tires. Effects aren't easily reversible and employment would require consideration of human effects.

Embrittlers - These agents operate by altering the molecular structure of base metals or alloys. They are typically clear and have little or no perceptible residue. They could significantly interfere with aircraft operations, degrade bridge structures, or affect vehicles' treads. Embrittlement effects aren't usually reversible, and there are potential human effects due to the agents themselves or to failure of affected vehicles/structures.

Riot Control Agents - Various agents temporarily produce some or all of the following: eye irritation and tearing, sensitivity to light, irritation of the upper respiratory passages, and a burning sensation

on the skin. Examples include Mace, CR, CS and its variants. Oleoresin Capsicum (OC), derived from chili peppers, when mixed with an emulsifier can be sprayed by a variety of dispensers. They can typically be dispersed in liquid, fog or powder form by a number of devices and munitions. Duration of effects typically lasts between 3 and 30 minutes.

Mechanical

Barriers

Coatings-Slippery - Teflon-type lubricants create slippery surfaces because of their chemical properties. They reduce friction to inhibit free movement in the target area. They are typically applied as a dry powder then wetted down to activate them. They are usually inexpensive, non-toxic, non-corrosive and can be cleaned up with water or peeled off after they dry.

Foams-Aqueous & Sticky - A thicker derivative of aircraft fire fighting foam, this technology employs a safe, biodegradable form of suds that can be piled four feet high. When applied over obstacles like fences, concertina wire, and ditches seeded with caltrops it impedes vehicles and makes it more difficult to defeat barriers. Foam is easily cleaned up.

Spikes & Spike Strips - Spikes are typically ½-inch diameter, angle-cut metal rods, which protrude about 3 inches from an unsurfaced road. Spikes are blunt enough so as not to penetrate shoe soles under a person's weight, however, a heavy vehicle will drive them through a tire. Spike Strips are flat strips resembling a fire hose with retractable hollow spikes designed to flatten the tires of a target vehicle. When the strip is activated, the hollow spikes extend vertically and puncture the tire as a vehicle rolls over the strip.

Batons

Expandable baton - These batons measure from 6 to 7 inches closed, but the three telescopic sections rapidly flick open to extend to 16 to 18 inches.

Electrical Contact

Baton - When powered by flashlight batteries, this standard-dimension baton can deliver a low voltage electric shock.

Sticky Shocker

Stun Gun & Belt - This handheld electrical discharge weapon can cause muscle tetanation by disturbing nerve paths. A standoff variant operates at ranges of about 20 feet by firing small, barbed electrical contactors connected to small trailing wires which snare the target clothing. The subject is typically subdued in 3-4 seconds. The stun belt is a command-activated device worn by the subject; it delivers a mild electrical shock.

Entanglements

Cloggers - Cloggers include polymer agents and sticky, soft foams. They can be dispensed by burst munitions or controlled encapsulants to clog intakes or other cavities of engines, cooling systems, etc.

Cords, Lines, Rope, Nets - These devices can entangle personnel and materiel such as vehicle axles, aircraft propellers and ships' screws.

Spider Fiber-Was not defined.

Projectile-Blunt Impact

Bean Bags - Fabric bags filled with lead shot (usually No. 9) weighing from 40 to 150 grams can be fired from a 12 gauge shotgun or 37mm launchers. The bags conform to the shape of the subject upon impact distributing the

energy over the contact area and producing less damage than a rigid projectile.

Liquid Filled Projectiles - Hollow rubber projectiles filled with a liquid enables the deformation of the projectile to reduce damage but also provides the mass to maintain the momentum of the impact. Typically, rounds are 12-gauge shotgun size and filled with liquid dye to mark the subject as well as dispersing the blunt impact.

Ring Air Foil Grenades - Rubberized donut shapes with airfoil cross-section, they are launched spinning (typically from the M16A1 M203 adapter). In some variants, cavities in the projectile body contain packets of CS powder which is deployed on impact. The 40mm sponge grenade has replaced these.

Rubber (Sting) Balls - These are 3/8-inch or 5/8-inch rubber balls fired from a 12-gauge shotgun, or in large numbers from a Claymore-type device. Velocity and injury potential vary with deployment mechanism. Considerable potential for injury exists if smaller projectiles strike the eye.

Stun Bags - A bag round composed of a 5- $\frac{1}{4}$ ounce canvas pouch filled with metal buckshot, stun bags spread into a 3-in diameter pancake in flight. They may have potential to cause serious injury.

Velocity Adjusting Launcher - With a typical payload of rubber or PVC bullets, this weapon adjusts muzzle velocity to control the payload's velocity as a function of the target's range.

Water (Cannon) Stream - A mobile unit can project a continuous stream of water for riot control purposes.

Optical

Holograms

Soldier and Forces - A projection of soldier-force images may make an opponent think more allied forces exist than actually do. This technology currently requires deployment of optical chambers, screens or perhaps smoke. Currently required preparations and equipment complexity make this impractical for all but a few small-scale deployments where the environment is well controlled.

Lights

Dazzle - Optical weapons that operate in the visible spectrum could emit extremely bright light, causing temporary blindness.

Flares - Devices generating light in the visible spectrum directionally or omnidirectionally could obscure the surrounding environment by saturating vision at night.

Illuminating Grenades - Launched by an M203, an illuminating grenade can produce 55,000 candlepower for approximately 25 seconds and produce the same effect as a flare.

Isotropic Radiators - Special munitions that illuminate or bloom with laser-bright intensity can cause the same retinal effects as low energy lasers. The energy is generated by an explosive burst which superheats a gaseous plasma surrounding, causing a bright flash.

Stroboscopic Devices (Bucha Effect) - High intensity strobe lights which flash at a frequency near that of the human brain can cause vertigo, disorientation, and vomiting

Electromagnetic

Radio

EMI - Electro-Magnetic Interference is a broad term denoting interference caused by electromagnetic devices mainly in the region from 3 Kilohertz to approximately 100 Gigahertz. Typically these devices are high power transmitters that can interfere (jam) with radio or television signals or cause malfunctions in other electronic devices like aircraft navigation systems. Typically at these power levels, effects are temporary, although consequences may be serious.

Non-Nuclear EMP - A short duration, high amplitude burst of microwave energy can disable electronic circuitry, especially modern semi-conductor based devices. The source is typically an explosion whose energy is converted to the electromagnetic region and then applied to a target at some range. Effects are generally permanent depending on the power level and range.

Radio Frequency Weapons - RF weapons transmit short, high power pulses of electromagnetic radiation over significant distances. These devices could upset delicate electronic systems, like computer and communication systems.

Microwave

High Powered Microwave - HPM devices generate high-energy microwaves (in the region of 100 Mhz to 10 Ghz) through electromagnetic equipment, like radar transmitters, or through the conversion of energy released by an explosion. Usually, the energy is focused in a narrow band to take maximum advantage of a target system's vulnerabilities. HPM devices can also have physiological effects on living beings.

Focusing HPM or RF systems is difficult, requiring complex and often large antenna

systems. Recent advances in electrically steered antennas for airborne RF systems haven't been applied to HPM systems because of their high power. The development of sources has historically been a challenge although there have been some advances recently. RF systems have the advantage of being operable in nearly all weather conditions.

Maser - A maser is a microwave generating device using the same basic principles of lasers, except in the microwave frequency range instead of the "light" frequency range. They typically are not very efficient and seldom seen outside laboratories or very special applications.

Thermal Gun - This is a microwave device that delivers directed energy, generally in the same frequency band as microwave ovens. It produces a heating effect through the transfer of energy to water molecules.

Infrared

The infrared region of the electromagnetic spectrum is subdivided into the sub millimeter wave, the far infrared, the mid infrared, and the near infrared. IR wavelengths range from about 1 mm to about 0.7 μm . Radiation at these wavelengths is not visible to the human eye. Lasers can be made to operate throughout the IR region with varying degrees of efficiency.

Tactical Lasers - Tactical lasers are generally considered high-energy lasers (HELs) in the multi Kilowatt range of power. The primary advantage of lasers is their ability to produce tightly focused, coherent, monochromatic light at very long ranges. A disadvantage is that they are not impervious to weather, although this varies with the wavelength. Currently the leading laser contender in the IR region is the Chemical Oxygen Iodine Laser (COIL) emitting at 1.315 μm . This type of system is already in use in industry in metal cutting. It has the

additional advantage that it couples very well at high power through fiber optics. This is the baseline laser type for the Air Force's ABL program. The system is expected to yield output power in the multiple Megawatt range for application in the boost phase intercept portion of the theater ballistic missile defense mission. Concurrently, another COIL-based system, the Airborne Tactical Laser (ATL) is being developed in the 300 Kilowatt output range for tactical applications. HELs have applications primarily in the counter-materiel NL mission and can provide ultra precision strike capabilities. Scaling down the size of this HEL system continues to be the main challenge of designers who have achieved significant breakthroughs in the past ten years.

Low Energy Lasers - Low energy IR lasers are available and have the potential for counter-personnel applications. It is possible, for example, to focus a LEL to produce a heating effect on a subject. Since IR isn't visible, psychological effects are reduced.

Visible lasers

Lasers have their greatest potential in the visible spectrum. They can be made to produce physiological as well as psychological effects. Dazzlers that temporarily obscure vision can be made in a variety of colors. The eye is most sensitive to the color green. A laser of this type can produce the perception of a wall of green light through which the subject cannot see. Additionally, using low power, eye-safe laser designators to focus on individuals can cause significant apprehension and cause subjects to flee. This was shown in Somalia. Lasers do have to overcome significant public perception problems, which are based largely on misinformation.

Ultraviolet

Tactical Lasers - There are currently no practical UV HEL systems in development. They would have generally the same characteristics as IR systems. Low power UV Eximer lasers have been proposed in the NL arena to create an ionized air conduit between the weapon and the subject through which an electrical charge could be transmitted to stun a subject. This would, in effect, be a long range (1-2 Km) wireless taser.

Pulsed Chemical Lasers - PCLs produce a high power but short duration pulse of energy. They have been suggested as devices to produce a plasma flash at the target, which also results in the generation of a mechanical wave that then propagates through the body. The incapacitation effects of the internally propagating wave are being studied.

X-Ray

Use of X-rays has been proposed and demonstrated to have reversible upsetting effects against electronic devices. Effects on humans have not been thoroughly studied.

Gamma Rays

Gamma rays, particle beam systems, and x-rays have the advantage of penetrability, but development of practical sources and the ability to control beam direction are significant problems. Also, human effects are not well understood.

Direct Comparison of Technologies

The direct comparison of technologies were evaluated on the basis that the specific sub-category of the technology on the basis that had the ability to fully, largely, partially, minimally, or not-at-all support the

accomplishment of the specific Joint or Service task. Each of these technologies was assigned a number, as shown below, based on the study group analysis how much the specific technology supported task accomplishment. The effort allows for a comparative analysis on an excel spread sheet to identify which task make significant contributions to military tasks accomplishment. Additionally, a review of contribution between each major category of technology can be examined as reflected in the charts in the final report.

Fully-1

Largely-2

Partially-3

Minimally-4

Not-at-all-5

The methodology allows for a comprehensive analysis, since Non-lethal Weapons, by virtue of its physical principle described in the characteristics mentioned above, may be use to support, complement, or completely accomplish the requirements identified in a specific Universal Joint or Service task. The study group's analysis, of a specific category of the technology, was made an understanding of two specific parameters: (1) Non-lethal Weapons that are currently available and in use, in production, or in engineering design and (2) Non-lethal technologies that are in the concept stage or are at least research indicates that it is possible with the laws of physics.

As described above, the 1457 Universal Joint and Service tasks were initially assess as to determine which of the tasks provided opportunities of the use of non-lethals across the spectrum of crises and conflicts. More than 25 percent of the 1457 tasks, were found to have potential opportunities for the applications or use of non-lethals. Each of the tasks were further evaluated and analyzed

against the 55 sub-categories of the Non-lethal technology suites to ascertain the degree of contribution to task accomplishment.

The interrelationship of the different type of non-lethal technologies and the amount of support the technology provides to each specific task can be determined using the database contained in Annex C and the Excel spread sheet contained in this Annex is traceable and repeatable for any future changes in technologies, tasks or military operations.

As presented above , the Spectrum of Threats and Crises were divided in seven different levels from the low end (Domestic Emergencies) to the high end (Global War/MTW). Within each of the different levels of the spectrum, 20 different types of operations were analyzed as the likelihood and significance of the operation within the spectrum. In the Appendix 1 (Operational Context) to Annex C database, the specific types of tasks that would support specific military operations, within the spectrum, are easily display and recorded. Using the lists of tasks that the support the operation within the spectrum, an analysis of the different technologies, to include to degree of support that the technology provides to the task accomplishment be displayed and evaluated.

As previously described in Annex C, the study group developed a database from the list of Universal Joint task list and each Service task list that were found to have opportunities for employment of non-lethal technologies. Appendix 2 (UJTLs Database) to Annex C contains the Microsoft Access Database. Appendix 2 database allows for the insertion of keywords (i.e terrorism, countermobility) or the actual task number to give the reader the exact content of the task(s) from the Universal Joint or Service task list. This is extremely beneficial and useful in identifying the tasks to technology connection.

As described above, if the interest is primarily on the type of operation, the list of tasks found in the Microsoft Access Database, (i.e., terrorism, counter-drug, insurgency support) can be recorded and matched with that specific task as list on the excel spreadsheet. One can easily determined which technologies offer the greatest contribution to task accomplishment. The results of the analysis that were provided in the final report were derived from the attached Excel spreadsheet.³

The repeatable and traceable methodology of "strategy-to-task-to-technology" provides a comprehensive framework for carrying tradeoff analyses further by connecting technology support for tasks within an operational context. Additionally, the technology's contributions, to include changes in characteristics or a new technology, can be examined and evaluated across multiple operations, at various threats and crises, and with a view to the anticipated frequency of those threats and crises. As technologies mature, further analysis and determination of the amount contribution by the technology to the tasks accomplishment can be reexamined or reviewed.

Results of Technologies and Tasks Analysis:

The results the study provides for comparisons of technologies and ultimately investments and funding decisions that may be considered by those empowered to give direction.

The results of the analysis on the appendix allows for review, examination and comparisons between technologies. However, when doing such comparisons, maturity, cost, utility, risk and method of employment much be considered by decision makers before dismissing or discounting a specific technology.

³ The "Task to Technology" Excel Spreadsheet is Appendix 1 to this Annex.

The Joint Non-lethal Weapons Program (JNLWP) needs to be aggressive in the pursuit and the development of a new generation of non-lethal technologies that support the warfighting CinCs in meeting the mandates established by the Department of Defense and the Nation,

The excel spreadsheet provides the detail results of technology to task analysis that will continue to be reexamination and review as new technologies are introduced, technologies mature or technologies are replaced..

The JNLWP should not fund programs that have little or no value in meeting the requirements at the strategic, operational, and tactical level. It is imperative to provide troops and commanders with a full range of options to broaden the set of responses that may be available to the political and military strategists and tactical commanders.

The study provides some issues that are worth considering:

- Military review and validation of Non-Lethals operational utility.
- Testing and Evaluation of Non-Lethals that have the greatest operational usefulness.
- Preparation of acquisition plans for Non-Lethals that promise the greatest operational effectiveness.
- Identification of changes to operational missions, doctrine, and tasks will be necessary with the fielding of Non-Lethals.

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